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CONTROL OF SCABIES BY USE OF SOAP IMPREGNATED WITH TETRA-ETHYLTHIURAM MONOSULPHIDE ("TETMOSOL")

BY

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It is now generally recognized that scabies spreads from one individual to another by the transference of the mite causing the disease, and that this transference may be direct or indirect. Indirect transference is responsible for a minor proportion of infections, and may be efficiently controlled, when necessary, by disinfestation of fomites. In direct transference, which is responsible for the majority of infections, the more intimate the contact the greater the chances of spread; hence scabies is often spoken of as a venereal disease, though it would be more apt to call it a family disease, in which the highest proportion of infections are acquired between husband and wife, parent and child, and so on. Up to the present time the only method used to control the direct spread is by treatment of the infected individual, and, with the exception of Johnson's (1943) suggestion that persons likely to be in contact with cases of scabies should dip their hands in solutions of benzyl benzoate, we are not aware of any proposed method of prophylaxis which might be used by the individual to protect him against the disease.

The idea of controlling scabies by the use of soap impregnated with tetmosol originated in animal experiments with *Notoëdres*, the results of which have already been published (Davey, Gordon, and Unsworth, 1944). Since the publication of that paper we have extended our observations to include human cases caused by *Sarcoptes scabiei*, and we here present the results of these investigations, together with some of our original observations.

In view of the high sarcopticidal activity of tetmosol in human and animal scabies (Gordon and Seaton, 1941; Percival, 1942; Jennings, 1942; Clayton, 1943) it appeared to us that, if the drug could be incorporated in soap and still retain its potency and non-irritative properties, it would then be available for prophylaxis and possibly for the treatment of mild infections without the necessity for medical supervision. In the Army, for instance, or in dealing with crowds of refugees, tetmosol-impregnated soap could be issued without the need for parades and disciplinary measures. Similarly, in an outbreak of scabies in factories, asylums, schools, and similar concentrations of people, it might be possible to control the infection by the provision of impregnated soap at the wash-basins. Johnson (1943) has written: "It may be said . . . that if all the mites on the hands and wrists of all patients alone could be killed (e.g., by dipping in benzyl benzoate solution), then about 60% of all the parasites would be eliminated. This might have a progressive and great effect on the reduction of the disease." We doubt whether Johnson's suggested treatment would be carried out in the absence of supervision, but we believe that a tablet of tetmosol-impregnated soap of normal appearance would arouse no antipathy and would be used.

In order to ascertain whether such a soap could be employed to control scabies it was necessary to establish that tetmosol could be successfully combined with soap and remain stable on storage. This was accomplished by Imperial Chemical Industries, Ltd., in collaboration with Messrs. Unilever, Ltd., and the soap was found to remain chemically unaltered when tested at monthly intervals over a period of a year. There still remained the question whether the use of such a soap would result in dermatitis, and whether tetmosol would retain its sarcopticidal properties when used in this form.

Risk of Dermatitis from Tetmosol Soap

The risk of dermatitis from any drug will obviously be affected by the concentration of the drug, the idiosyncrasy of the individual, the period of time over which it is used, and the frequency of its application.

It is difficult to give a reliable average figure for the number of times the ordinary person washes during the course of the day, for the length of time he spends on the process, or for the degree of dilution of the soap applied to the skin. By studying the ablutions of a number of individuals, however, we found that they spend about 40 seconds in lathering either the face or the hands (in the case of a bath the whole body is lathered for about 60 seconds), and that if a drug is incorporated to the extent of 10% in soap its dilution when applied to the skin is in the region of 1.8%; further, we found that it is the common practice to wash off the soap with about six changes of water. On these observations our subsequent trials with the soap were based. The frequency of washing obviously varies according to the individual, but a rough idea of the extent to which soap is used in the Army was obtained by sending a questionary to 150 R.A.M.C. officers, whose replies suggested that almost 100% of the men wash the hands and face at least once a day and the body at least once a week, and that the majority probably do not use soap on the hands and face more than two or three times a day.

Evidence from the literature suggests that tetmosol, when applied to persons with dermal lesions due to scabies, only occasionally produces dermatitis (Percival, 1942; Clayton, 1943). Our own experiments with tetmosol soap confirm these findings: 242 patients suffering from proved scabies received three baths with 20% tetmosol soap during the course of six days; of these, four developed dermatitis; in three of these cases of dermatitis patch-tests showed that the reactions were not due to tetmosol; the remaining case was not tested. It follows, therefore, that only a low incidence of dermatitis is liable to occur after the use of tetmosol soap when applied for short periods to the skin, even when this has already been damaged by scabies. These results, however, did not directly

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concern us in the present investigation, since the point to be established was whether or not tetmosol soap, when applied prophylactically for long periods to the normal skin, was apt to produce dermatitis. This must remain unanswered for the time being, since it can only be determined by a prolonged use of the soap by a large number of people. We have, however, certain evidence which is of some value. In our own experiments three volunteers in the laboratory have used soap containing 5% tetmosol twice daily on the face and hands, and once a week on the body, for two months without dermatitis resulting. Subsequently, one of the volunteers similarly used 10% tetmosol-impregnated soap for a further period of a year, and another used 20% tetmosol soap for a further period of six months, without ill effect in either case.

A further test over a shorter period was carried out by Major Kenneth Mellanby, R.A.M.C., who distributed two tablets of 10% tetmosol soap to each of 29 volunteers (conscientious objectors). All used the soap as long as it lasted, but the time varied with the care of the user; thus six men made it last only 14 to 18 days, but the remainder made it serve for as long as 63 days. The average for all users was 34 days. The following is quoted from Major Mellanby's report on "Skin Reaction":

"Six subjects observed no unusual sensations when they used the soap, but 23 of the 29 volunteers reported that some irritation of the skin occurred. In 12 cases this was very slight and transitory—generally just a slight stinging of tender areas after soaking in a hot bath; had these subjects not known that they were using a special soap they might not have noticed this symptom.

"Nine volunteers complained of more serious irritation, but this caused no erythema or other skin reaction. These volunteers continued to use the soap until it was finished, and mostly found that, if anything, the irritation was less severe towards the end of the exposure. There is nothing to suggest that there would have been any danger in these subjects continuing to use the soap for long periods; they agreed to continue for longer if necessary.

"Two subjects reacted more severely, and in the first instance they used the soap for only two and five days respectively. Brigadier R. M. B. MacKenna has examined both these patients, and reports that they are both individuals with unusually sensitive skins. One is genuinely sensitive (but only slightly) to tetmosol; in the other the impregnated soap acted apparently as a primary irritant. In both cases the skin recovered completely when the use of the soap was discontinued. It is obvious that these two volunteers would be unable to use tetmosol soap permanently; but, if the soap were issued to a large population, individuals of this type would discover that the soap disagreed with them before any damage had been done. It seems likely that the proportion of such individuals in Southern Europe and the Balkans (where the soap might be most useful) is considerably lower than in this country.

"The general conclusion seems to be that most people will not be harmed at all by the soap. A small minority will find it a skin irritant, but this fact will be easily detected before any harm is done. There is no evidence to suggest that anyone is highly sensitive to tetmosol soap."

Sarcopticidal Properties of Tetmosol Soap when Used Therapeutically

In Animal Infections due to Notoëdres

As already stated, observations on the washing habits of a number of individuals enabled an estimate to be made of the final dilution of the drug incorporated in soap when it reached the skin, and of the length of time during which the drug would be in contact with the skin. Infected rats were subjected to treatment similar to that which would be used by a person performing his ordinary ablutions. The infected area was washed for 40 seconds with a known dilution of soap lather. The soap was immediately washed off with six consecutive applications of clean swabs of cotton-wool dipped in clean warm water. Using this technique with soap containing 5% tetmosol (final dilution of the drug 0.9%) twice daily for periods of two to seven days, it was found that in only a few instances was the treatment followed by cure (8 animals treated, 1 cured)—that is to say, by the complete destruction of all mites in the treated area; such treatment, however, invariably resulted in the destruction of a large number of mites. By increasing the concentration of tetmosol in the soap to 20% a greater proportion of mites were destroyed, although, as before, the majority of cases were not cured (6 animals treated, 1 cured). Further experiments were now carried out in which the rats were treated in a manner corresponding to a person taking a weekly bath—i.e., the washing period was increased from 40 to 60 seconds, and instead of the operation being repeated twice daily it was performed once a week. Six rats were treated in this manner: in no instance did a complete cure result, and, although there was a considerable reduction in the mite population as compared with controls, this was not so marked as in the case of 20% or 5% tetmosol when used twice daily.

In Human Infections due to Sarcoptes scabiei

Having shown that tetmosol soap possessed curative properties in respect of animal infections due to *Notoëdres*, it remained to be shown whether it also possessed similar therapeutic effects in the case of human infections with *Sarcoptes scabiei*. Facilities for the investigation were obtained by arrangement with the War Office, soldiers suffering from scabies being sent to centres under our control. The total number of cases which received a full course of treatment was some 250, but owing to military exigencies only 110 were available for the entire subsequent observation period. In order to put the investigation on a scientific basis the following rules were rigidly adhered to and applied to all the cases recorded in this paper:

1. Every case recorded as positive was diagnosed by the finding of the live acarus.

2. All relapses were similarly diagnosed by the finding of the live acarus, any doubtful case being kept under observation until either a cure or a relapse had been definitely proved.

3. The bathing was supervised by a medical orderly, and the procedure was as follows: (i) The patient took a hot bath, using a tablet of 20% tetmosol soap. (ii) The patient stepped out of the bath and, assisted by an orderly, was thoroughly lathered all over (except for the face and neck), attention being given to such parts as the feet, which might otherwise have escaped the application of soap. (iii) The patient stepped into the bath, rinsing off the soap. (iv) Thorough lathering with tetmosol soap was then repeated out of the bath. (v) The soap was again rinsed off in the bath. (vi) The patient dried himself and dressed. (vii) Daily inspections were made, and any evidence of itching or skin reaction was recorded. In the case of treatment by six baths, these were given on successive days; in the case of treatment by three baths, some of the patients received their baths on the first, third, and fifth days, others on the first, third, and sixth days.

4. After treatment was completed every case was kept under observation for a period of at least six weeks. So far as was possible, patients were recalled for observation at weekly intervals, and where such frequent attendance was not possible each case was examined by one of us at least twice during the six weeks, one of these examinations always occurring at the end of the observation period.

Results Obtained (a) After Six Baths.—The first six cases in which the acarus was found were given one tetmosol-soap bath on each of six consecutive days. All were observed for six weeks after the completion of treatment. All six cases were cured.

Results Obtained (b) After Three Baths.—A total of 110 cases were treated by means of three baths with 20% tetmosol soap and were subsequently observed at intervals over a period of six weeks. Of these 110 cases, 88 (80%) were cured. In practically every patient, including some of those who were not cured, treatment was attended by an immediate disappearance of irritation, the man often getting his first sound sleep for several nights.

Of the 110 cases treated by means of three baths with 20% tetmosol soap 22 (20%) relapsed. In the majority of relapses the irritation persisted after treatment, but in a small proportion it disappeared completely for periods varying up to three weeks, the renewal of the irritation being often associated with the finding of the acarus.

It must in fairness be stated that these figures, for reasons beyond our control, are biased in favour of relapse. In the first place, it is probable that a number of the cases recorded as failures were really reinfections, as there was ample opportunity for re-exposure, particularly in the case of men returning to infected families. In only four instances, however, was it possible to obtain clear evidence of re-exposure to infection; these four cases have been omitted. Secondly, cases which relapse are noted earlier than those which are cured, as the latter are recorded only at the end of six weeks and so are more likely to be lost to view than those which have relapsed.

From the results recorded above it was clear that a high proportion of established cases of human scabies with well-marked lesions were cured when thoroughly washed on three occasions with 20% tetmosol soap, and that tetmosol soap was much more effective in curing natural infections with *Sarcoptes* in man than with *Notoëdres* in rats.

The main object of our investigation, however, was to show whether tetmosol soap could be used as a prophylactic against the acquirement of the disease. The practical difficulties involved in a controlled experiment with human volunteers were found to be so considerable that this was not attempted. It was thought that, if it could be shown that the use of tetmosol soap protected rats against the acquirement of the disease when exposed to massive infection from their companions, this result, when considered in conjunction with the proved therapeutic value of the soap in human infections, would warrant its trial on a large scale in an infected human community.

Sarcopticidal Properties of Tetmosol Soap when Used Prophylactically

In order to test the prophylactic value of tetmosol incorporated in soap, white rats were confined in a large tank. Some of these received no treatment; others were washed over the entire surface of the tail with unmedicated soap, the soap, as before, being washed off with six fresh swabs dipped in warm clean water. The remaining rats were similarly treated, but tetmosol in various strengths was incorporated in the soap. After three days of treatment a number of rats suffering from severe *Notoëdres* infection were introduced into the tank containing the uninfected rats, the tail-washing of the uninfected rats being continued. From now on, the rats were examined daily for gross evidence of infection, but the burrows were not opened up until the end of the experiment, when the animal was killed, the tail removed, and a careful microscopical examination made of all papules.

Although it appeared to us unlikely that impregnated soap applied for a short period at relatively long intervals would prove effective as a prophylactic, our first experiments were designed to imitate a person taking a weekly bath with tetmosol soap, the soap not being used during the intervening period. A series of five experiments were carried out using the technique described above. The results are shown in Table I.

TABLE I.—*Showing, in a colony of 20 clean rats in constant contact with 6 rats heavily infected with Notoëdres, the prophylactic effect of washing an area of skin (the tail) for 40 seconds once a week during three to five weeks with 5%, 10%, and 20% tetmosol soap*

No. of Rats	Treatment	Period of Exposure to Infection in Days	Post-mortem Examination of the Treated Area (the Tail)	
			Average No. of Live Mites	Average No. of Eggs
7	Unmedicated soap	18 (1) 22 (1) 23 (3) 25 (1) 30 (1)	57 115 195 131 190	313 640 980 747 648
3	5% tetmosol soap	19 (1) 22 (2)	3 14	23 69
7	10% tetmosol soap	24 (2) 25 (3) 30 (1) 31 (1)	24 47 17 91	82 160 67 185
3	20% tetmosol soap	18 (1) 22 (2)	2 0	6 0

It can be seen from Table I that neither 5 nor 10% tetmosol-impregnated soap, when used at weekly intervals, protected any of the rats from the disease. On the other hand, if the results following the use of the tetmosol-impregnated soaps are compared with those following the use of unmedicated soap it will be seen that in every instance the development of the disease had been controlled, so that fewer live mites and eggs were found in animals treated with impregnated soap than in those treated with ordinary soap. The table also shows that there is a tendency (which can be seen in almost all the series recorded) for the infection to become rapidly and progressively heavier with each day of exposure. This fact probably explains the apparent anomaly that a larger number of eggs and live mites were found in rats treated with 10% tetmosol soap than in those treated with 5%, for the former series were exposed to massive infections for longer periods than the latter.

The results obtained by using 20% tetmosol soap were surprisingly good, considering the shortness of the application and the long interval between treatments; no mites or ova were found in the tails of the two rats which had four treatments in 22 days' exposure to infection; and in the remaining rat, which had 18 days' exposure to infection and three treatments, two mites and six ova only were found.

These experiments show that weekly treatment by washing with tetmosol soap of strengths varying from 5 to 20% did reduce the infection, in spite of the massive risk to which the rats were exposed. It is possible that weekly bathing with tetmosol soap might have greater value in the case of human beings than in the case of rats, for the risk of scabies infection in man is immensely less than among the rats recorded in these experiments. Even in a heavily infected person the number of mites present is relatively small in comparison with the enormous number found in such heavily infected rats as the carriers used in our experiments, and the same continuous and intimate contact does not exist between uninfected and infected human cases as it does in the rats in the above experiments. Moreover, it must be remembered that clean rats themselves rapidly became carriers, since untreated areas, such as the paws, nose, and ears, were soon heavily infected.

Having shown that a weekly bath with tetmosol soap protected only a small proportion of the rats exposed to infection with scabies, and reduced the intensity of the infection in the remainder, our next experiments were designed to ascertain whether daily washings with tetmosol soap would have a more marked prophylactic effect. They were planned in imitation of a person using 5% tetmosol soap for his daily ablutions, the technique used being the same as in the previous experiments. The results obtained are shown in Table II.

TABLE II.—*Showing, in a colony of 18 clean rats in constant contact with 6 rats heavily infected with Notoëdres, the prophylactic effect of washing an area of skin (the tail) for 40 seconds twice daily with 5% tetmosol soap*

No. of Rats	Treatment	Period of Exposure to Infection in Days	Post-mortem Examination of the Treated Area (the Tail)
6	None	28 (1) 33 (2) 34 (2) 35 (1)	Live mites and ova +++
6	Unmedicated soap	13 (1) 28 (1) 29 (1) 30 (2) 36 (1)	Live mites and ova +++
6	5% tetmosol soap	25 (1) 28 (1) 29 (1) 30 (2) 36 (1)	No live mites, ova, or mite remains

The results recorded in Table II show that washing the skin twice daily with unmedicated soap has no protective value against rat scabies, but that similar washing in which 5% tetmosol is incorporated gives complete protection among rats constantly exposed to heavy infection for a period of 25 to 36 days. It will be noted that no mite remains were found in the treated area. In spite of this, papules were present, which were presumably caused by invading mites. If this presumption is correct the action of tetmosol would appear to be not that of a repellant but rather that of a lethal agent which destroys the mites after they have penetrated the treated area of skin.

Conclusions and Summary

Tetraethylthiuram monosulphide (tetmosol) when combined with soap in 5, 10, and 20% dilutions has been shown to retain its sarcopticidal properties.

In cases of rat scabies due to *Notoëdres*, tetmosol soap was shown to produce a local therapeutic effect when used daily or weekly, the local infection being cured in some cases, the mite population being reduced in others.

In cases of human scabies six men suffering from *Sarcoptes scabiei* infection received five to six baths with 20% tetmosol soap on successive days; all were cured. A further series of 110 men received three baths with 20% tetmosol soap over a period of a week. All these cases remained under observation for at least six weeks, at the end of which period 88 (80%) were found to have been cured, and 22 (20%) to have relapsed.

Although it has been shown that the repeated use of tetmosol soap cures a high proportion (80%) of established cases of scabies, the soap is unlikely to supersede any of the standard methods employed which result in more than 90% cures. On the other hand, the simplicity of procedure involved in supplying the patient with a tablet of soap and instructing him to use it when bathing suggests the possible value of the soap if it is used therapeutically in communities which have become disorganized as a result of war, and in which it is not practicable to employ standard methods of treatment.

In the case of clean rats heavily exposed to *Notoëdres* infection from their companions, washing the tail once weekly with 5 and 10% tetmosol soap was followed by a marked reduction in the number of mites developing in the skin as compared with controls washed with unmedicated soap. When 20% tetmosol soap was similarly used once weekly the effect was more striking, two rats being completely protected against infection over 22 days, and the remaining rat developing only a very light infection.

In contrast to the partial protection provided by weekly washing with tetmosol soap, the regular use of 5% tetmosol soap twice daily on the tails of clean rats constantly in contact with companions suffering from severe *Notoëdres* infection gave complete protection to the treated area during periods of 25 to 36 days (the duration of the experiment). Little or no protective action followed the use of unmedicated soap.

It is considered that the results recorded justify the belief that the generalized use of tetmosol soap in an infected community would reduce the incidence of scabies by sterilizing some existing cases and by destroying the infection in freshly invaded persons. Such generalized use, however, will only be possible if it is found that a high incidence of dermatitis does not follow prolonged use of the soap. We have shown that the incidence of dermatitis following the use of the soap for short periods is low, and that it was low also among a small number of people tested over a prolonged period; but no estimate can be made of the risk of dermatitis until an extensive trial with a large number of individuals has been carried out.

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THE CARRIER STATE IN SONNE DYSENTERY

BY

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Since the discovery of *B. dysenteriae* Sonne in 1915 accounts have been published of many epidemic outbreaks of Sonne dysentery, but rarely has the original carrier in any single outbreak been traced. In fact, Bloch (1938) states: "It is generally accepted that symptomless chronic carriers of bacillary dysentery are rare"; while Buckle (1938), in the course of an investigation of an outbreak of Sonne dysentery in a mental hospital, says: "Tracing the cause appeared a hopeless task. . . . Proved persistent carriers of this organism are apparently rare, and . . . little investigation has been done to elucidate this point."

The appearance of Sonne dysentery in the Army in many places throughout the country, and particularly the large outbreak in a regiment which I propose to describe in some detail, have led me to search the literature for recorded outbreaks of this disease, especially noting whether or not an original carrier was found in each outbreak. The following table covers most of the recorded outbreaks in this country. It is seen that in only one outbreak—that reported by Thornton and Darmady (1938)—was an original carrier found.

In view of these facts and the suggestions that chronic carriers of Sonne dysentery are rare, the severe outbreak which occurred in an Artillery regiment in July–Aug., 1943, is of special interest, since a chronic symptomless carrier who worked in the cook-house was traced as the originator.

Author	Place	No. of Cases	No. of Cases Bacteriologically Positive	Cause	Remarks
Weisman (1927)	Glasgow	—	80	Milk	No carrier found
Laws (1936)	Mental hospital	113	75	No cause found	Suggested that mild or symptomless cases were missed and they spread the infection
Parry and Peters (1936)	Mental hospital, Bristol	32	9	" "	Case - to - case spread
Bloch (1938)	Institution, Glasgow	—	78	No evidence of spread by food, milk, or water	Origin not traced
Buckle (1938)	Mental hospital	115	74	No cause found	Six positives among staff, nurses, and porters, but not cooks
Savage (1938)	Somerset	130	?	Ice-cream	No carrier or specific source of infection ascertained
Thornton and Darmady (1938)	Mental colony	—	30	Two symptomless carriers — one a dish-washer	
Cruickshank and Swyer (1940)	—	32	29	No carrier found	Suggested case-to-case spread
Graham (1942)	School	52	Only 5 tested, who were positive	No carrier or infecting agent found	All kitchen staff examined, but negative
Irvine (1942)	Leicester village	73	17	No carrier found	Suggested case-to-case spread
Green and Macleod (1943)	Somerset town	About 400	?	Water	No carrier found. Eight waterworks employees examined: all negative

The Outbreak

An Artillery regiment, consisting of three batteries and with a total strength of about 900 men, was at a practice camp in Wales when an outbreak of diarrhoea occurred. This started about July 20, 1943, and appears to have been at its height about Aug. 1, but no examination of faeces was done until Aug. 3. However, from this date every soldier with a history of diarrhoea since the start of the outbreak had specimens of faeces examined. Those with a positive result were admitted to isolation hospital immediately, while negatives had further examinations of faeces until three specimens had been found negative. Altogether there were 292 cases of diarrhoea (32.5% of the total strength), of which 81 were positive for *B. dysenteriae* Sonne. It is probable that the infection had died out in many of the remaining 200-odd cases before the stools were examined, as the attack of diarrhoea in some cases had been two to three weeks previously. Treatment in isolation hospital with sulphaguanidine resulted in the rapid cure of all cases, including the carrier.

This outbreak occurred in what was virtually a closed community, since the camp was isolated and outside amenities were few. The water supply was satisfactory, and was regularly examined bacteriologically. The general lay-out of the camp and the sanitary arrangements were also satisfactory. There was no fly nuisance; food-storage facilities were good; and both larders and cook-houses were clean and well kept. Food for the whole camp was drawn from a single central store. There were four main cook-houses in the camp, one of which served the permanent staff of the camp, while the other three were staffed by and served the visiting regiment.

No cases arose among the permanent staff, and no evidence of diarrhoea was found among the cooks of the staff cook-house. Cases, however, occurred among men served from all the cook-houses used by the visiting regiment. All the cooks and orderlies in each cook-house were paraded and questioned carefully whether they had had diarrhoea during the last 12 months. Twelve gave a history of diarrhoea within the period of the outbreak, and, in addition, one in June, one in May, one in Feb., 1943, and one in Aug., 1942. These men were all excluded from the cook-house immediately and their stools

examined on six occasions before being considered negative and allowed to return to duty. Six positives were obtained among these men. All other cook-house personnel who denied a history of diarrhoea had three specimens of faeces examined, but were allowed to continue their work in the cook-house without interruption.

The exclusion of suspicious cooks from the cook-house was completed on Aug. 11; the last fresh case of enteritis occurred on Aug. 13, and I considered that by Aug. 20 the regiment could be considered free from infection. Owing, however, to the expected activities of this regiment, Higher Authority considered that the risk of another outbreak should be excluded with certainty, and eventually every man in the regiment who had not previously been examined, because he gave no history of diarrhoea, had two specimens of faeces tested. It is of interest that not a single further positive result was obtained.

The Carrier

At least one Sonne-positive case was found among the personnel in each cook-house, but only one man whose history of diarrhoea was outside the limits of the incubation period. This was Gunner P., who gave the following history.

While stationed in Scotland in Aug., 1942, he had been admitted to a camp reception station with acute enteritis, pyrexia, colic, and frequent stools containing blood and mucus. He was in bed for about 7 days, but no investigation was carried out. In Nov., 1942, he was posted to this regiment, and in Feb., 1943, was employed in the sergeants' quarters. His duties included providing the sergeants with cups of tea, bread-and-butter, etc., at various times. At this period there was a mild outbreak of enteritis in the regiment—some 80 cases in all, of which the majority were sergeants. No investigation was carried out, however, and the outbreak apparently died down. For some months he was then employed on the guns, but on July 7 he was detailed for duty as orderly in one of the regimental cook-houses at the practice camp. His job was mainly cutting bread-and-butter. The first cases occurred about July 20, and were among the battery personnel served from this particular cook-house.

It is certain that in the course of his duties Gunner P. visited the other regimental cook-houses to lend or borrow on numerous occasions, and thus infection would be conveyed to food and personnel in them, with consequent spread of the epidemic to the remaining two batteries. It was equally certain, for administrative and other reasons, that he did not so visit the permanent staff cook-house. It has been noted that no cases occurred among the personnel served from there. This man had had no symptoms since his moderately severe attack 12 months previously, but his stool showed a heavy infection of *B. dysenteriae* Sonne.

Comments

It is evident that Gunner P. was the carrier in this outbreak, since he was the only Sonne-positive found who had not had any symptoms within the limits of the epidemic. He had had, in fact, no symptoms whatsoever since his enteritis of 12 months previously, while his history was exceedingly suggestive and his work as a cutter of bread-and-butter was ideal for the spread of the organisms. There can be no doubt that here was an outbreak of Sonne dysentery spread by food—by far the commonest vehicle—infected by a chronic symptomless carrier of a year's duration.

I consider that symptomless carriers are responsible for many of the recently frequent outbreaks of Sonne dysentery in this country. However, I would suggest that they are only symptomless in that they have had no symptoms for, maybe, many months, but that with careful questioning a history of diarrhoea, or perhaps just "looseness of the bowels," at some time in the past will be obtained. This opinion is borne out by the fact that in the outbreak described above not a single positive stool was obtained from the remaining two-thirds of the regiment who were subsequently examined but who had given no history of illness previously. In other words, no positive case was found that did not give a history of diarrhoea at some time.

It is impossible to over-emphasize the importance of careful questioning of all persons connected with food preparation in any outbreak of dysentery; this, followed by the segregation of all those with a history of diarrhoea, however slight, will almost always put an end to the outbreak. Gardener (1929), when discussing asylum dysentery, stated that carriers are the main source of infection; while Hobbs and Allison (1942) have also recently stressed the importance of carriers and ambulant cases in the spread of the disease. However, although the carrier state is generally admitted, only rarely has a single definite carrier been found in an epidemic of any size. Yet it is essential to isolate such a carrier before one can be satisfied that any such epidemic has been finally brought to an end. Milk, water, food, have all been involved in some or other outbreak, but often the human factor is neglected. The vehicle—and cold uncooked foods should always be primarily suspect—is a link in the chain which will, if carefully followed, bring the investigator to the human focus of the infection.

Summary

An outbreak of Sonne dysentery in a virtually closed community is described.

It was discovered that a chronic symptomless carrier had spread the infection by food during his duties in the cook-house.

The removal of all infected cooks from the cook-house immediately stopped the outbreak.

The opinion is put forward that the so-called symptomless carrier of Sonne dysentery is common, but that a history of diarrhoea at some time in the past can usually be obtained.

I wish to thank Capt. C. E. Perry and Lieut. Madison, R.A.M.C., for their help at the scene of the epidemic; Dr. R. M. Fry of the E.P.H. Laboratory Service for his reports on numerous specimens; and the D.D.M.S., Western Command, for his permission to publish this account.

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AN ANALYSIS OF COLLES'S FRACTURE

BY

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"No two Colles's fractures are alike."—SPEED (1935).

At first when examining and reducing Colles's fractures this aphorism seemed too true. Later, recurring types were noted, and it was decided to review the radiographs of a series of fractures around the lower end of the radius seen at this hospital between Jan., 1942, and Oct., 1943.

Descriptions of the varieties of comminution of the lower radial fragment in Colles's fracture are absent from surgical textbooks and vague in works on orthopaedics. Comminuted forms are recognized by Platt (1932) and others, and a vertical posterior marginal crack involving the wrist-joint is described by Clayton and Edwards (1929).

Very divergent views on the cause of poor end-results are given. Platt (1935) and Taylor and Parsons (1938) stress the bad prognosis of coincident fractures of the base of the ulnar styloid and injuries to the triangular fibrocartilage, but do not think involvement of the ulnar notch of the radius important. Grasby and Trick (1929) find that imperfect reduction leads to osteo-arthritis of the inferior radio-ulnar joint. Clayton and Edwards (1929) and Bankart (1929) stress the reduction of backward rotation and Mayer (1939) of supination. Finally Lewis (1934) blames lack of co-operation by the patient in active exercises. Thus, given satisfactory reduction and its maintenance and the adequate supervision of active exercises, injuries to the base of the ulnar styloid and the triangular fibrocartilage appear to lead to most trouble. In this analysis Colles's fractures are divided into types with different degrees of damage and mechanisms. A short anatomical account of the radio-ulnar joint will enable the discussion to be followed more readily.

Anatomy

The ulnar collateral ligament of the wrist is attached to the tip of the ulnar styloid process. The apex of the triangular

fibrocartilage of the inferior radio-ulnar joint is attached to the floor and walls of the small pit at the radial side of the base of the ulnar styloid. This fibrocartilage spreads out to a linear insertion along the edge of the ulnar notch of the radius, and its margins are prolonged into the loose anterior and posterior capsule of the radio-ulnar joint. Thus a fracture across the base of the ulnar styloid or the splitting off of the postero-medial corner of the lower end of the radius enables the main portion of the radius to displace the fibrocartilage without seriously injuring it.

Analysis and Discussion

In all, 328 fractures around the lower end of the radius have been analysed; 13 epiphysial injuries and the rare greenstick Colles's fracture have been included. The common greenstick fracture of the radius, fractures of the lower shaft of both forearm bones, and carpal fractures have been excluded.

The 219 Colles-type fractures fall into five groups with surprising clarity:

(A) 59 simple Colles's fractures—i.e., fractures not involving the radio-carpal articular surface, but often with fragments of the posterior cortex flaked off, usually including Lister's tubercle (see Fig. 1).

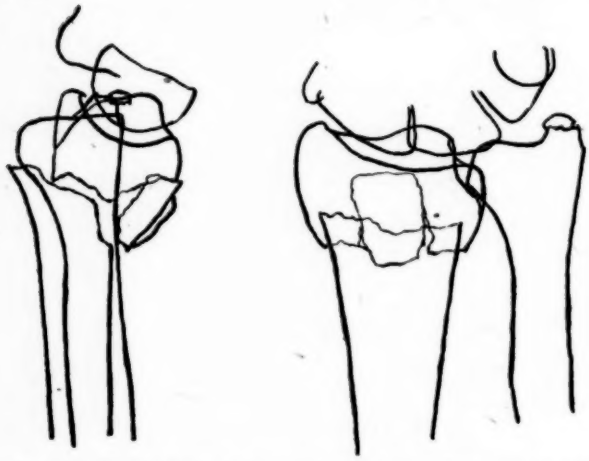

FIG. 1.—Simple Colles's fracture with severe displacement and shortening. Probable rupture of triangular fibrocartilage. Note tubercle of Lister in flake off posterior cortex. (Group A.)

(B) 108 fractures with an oblique postero-medial fragment containing part of the ulnar notch of the radius and so the attachment of the triangular fibrocartilage, and involving both radio-carpal and radio-ulnar joints (see Fig. 2).

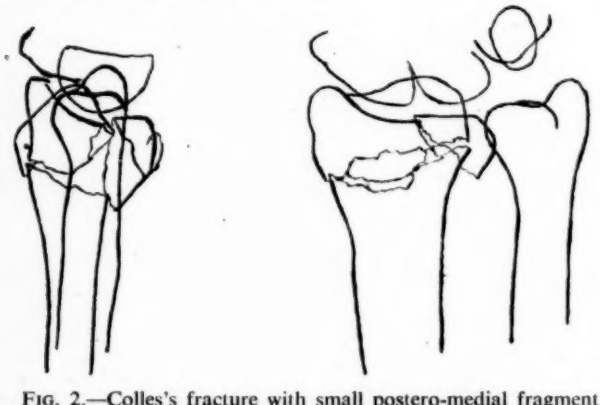

FIG. 2.—Colles's fracture with small postero-medial fragment. Medial displacement and shortening of this fragment suggest posterior subluxation of intact fibrocartilage. (Group B.)

(C) 39 "comminuted Colles's fractures" in which a fracture of the base of the radial styloid passes from the centre of the radio-carpal articular surface obliquely to the lateral surface of the radius, in association with the above postero-medial fragment (see Fig. 3).

(D) 11 fractures with a vertical fracture of the radial styloid, with or without a postero-medial fragment.

(E) 2 fractures with a transverse fracture of the base of the radial styloid passing from the articular surface directly laterally, without a postero-medial fragment.

The other 19 cases include 8 fractures of the styloids (2 ulnar and 6 radial), 5 marginal fractures of the radius, and 6 Smith's fractures.

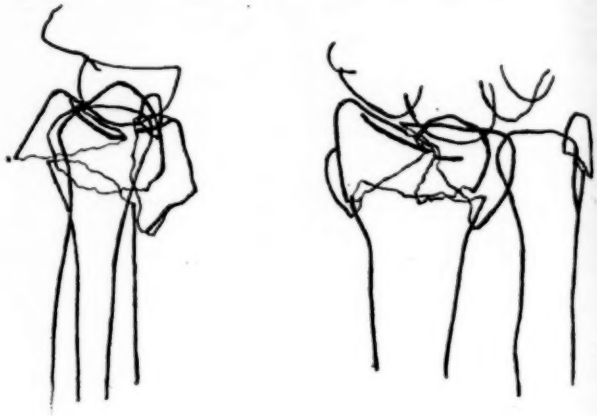

FIG. 3.—Comminuted Colles's fracture with oblique fracture of radial styloid and large postero-medial fragment. Note backward displacement of whole ulnar styloid and fibrocartilage. (Group C.)

A detailed analysis of the Colles's fractures according to the presence of shortening of the postero-medial corner of the radius, the type of fracture of the ulnar styloid, and the severity of the displacement of the main fragments, was made, and on its results the following remarks are based.

Clayton and Edwards's (1929) observation that it is the long narrow type of ulnar styloid that breaks at its tip, whereas the short broad type is less often fractured, has been confirmed.

In general, basal fractures of the ulnar styloid are rare when displacement is minimal and frequent when severe, especially if shortening at the radio-ulnar joint is present. In fact, there are only 16 cases out of 219 in which the presence of shortening at the radio-ulnar joint without a basal fracture of the ulnar styloid suggests a rupture of the triangular fibrocartilage. A postero-medial fragment is present in all but one of these 16 cases, and in many the extreme medial displacement of this fragment suggests a posterior subluxation of the intact ligament rather than an actual rupture. This explains the rarity of instability of the radio-ulnar joint as a late sequela (Hyman and Martin, 1940), and the usual excellent return of pronation and supination.

Group B contains most of the more severe fractures and shows many basal fractures of the ulnar styloid. The postero-medial fragment varies in size from an apparent avulsion of the insertion of the radio-ulnar fibrocartilage to a fragment like the isolated posterior marginal fracture, and its vertical direction suggests that it is a compression fracture. In group C the bending force that produces the Colles's fracture is combined with a compression force directed backwards and laterally, splitting off the posterior and lateral portions of the articular surface and leaving an anterior marginal fragment which is sometimes rotated slightly forward (see Fig. 3). This compression and lateral displacement mechanism accounts for the frequency of shortening and of basal fractures of the ulnar styloid. Group D is small, and represents a compression fracture in which the force is directed almost vertically down the shaft of the radius. Group E combines the Colles with a transverse shearing fracture of the radial styloid—one of the chauffeurs' fractures.

All these types of secondary fracture may occur isolated, and similar comminutions may be seen in Smith's fractures.

Reduction

A general method of reduction is described and discussed below. The strength of the manipulations should be varied with the exact displacement seen in antero-posterior and lateral radiographs.

Nitrous oxide anaesthesia is satisfactory provided a dry slab is prepared before reduction, that during plastering the slab is rendered almost dry, and that hot water is used. (This accelerates setting of the plaster.)

1. Strong steady traction on the hand in slight *radial* deviation obtains disimpaction, overcomes shortening at the radio-ulnar joint, and, if strong enough, secures anterior cortex-to-cortex apposition.

2. Strong traction in 30 degrees palmar flexion with direct pressure, by the chin if necessary, over the lower fragments corrects backward rotation without further trauma to the joint capsule.

3. Traction in ulnar deviation and pronation corrects radial deviation and supination.

4. Direct antero-posterior and lateral compression moulds the fragments.

This method is similar to many others, but I would stress that, unless disimpaction is carried out by strong traction in radial deviation, shortening at the radio-ulnar joint and posterior subluxation of the triangular fibrocartilage may persist.

The method of Sir Robert Jones (or, rather, of Hugh Owen Thomas—see Parker, 1929) is satisfactory if there is no shortening or gross comminution, but a generally applicable method is preferred.

Immobilization and After-treatment

Reduction is confirmed and its stability tested. The arm is held in moderate traction in the mid-pronated position with considerable ulnar deviation and no palmar flexion. The thumb is opposed, abducted, and flexed to meet the flexed index finger. A ¾-circle plaster back slab is applied gripping the anterior surfaces of radius and ulna and the dorsal surface of the first metacarpal, and taking a long grip of the upper end of the ulna. This position helps to maintain the full length of the radius. The slab is secured with a dry cotton bandage. No moulding is performed if the fracture is stable, but if unstable —as, rarely, it is—careful moulding to the anterior radial concavity is essential.

Reduction is checked radiographically, and graduated and vigorous active exercises to fingers, elbow, and shoulder are started immediately under supervision. A high sling is worn for three or four days. The plaster is removed after five weeks and the exercises are intensified. The patient usually returns to light clerical work after one week (in plaster), to light manual work after seven weeks, and to heavy work after about nine weeks. He is discharged when his range of movement is approaching that of the normal side and he has been doing his usual work without complaint for at least a week.

It is hoped to discuss in detail the results of a smaller series later.

Summary

238 fractures about the lower end of the radius have been analysed and shown to fall into certain definite groups. Their mechanisms have been discussed and their treatment outlined.

I am much indebted to Mr. V. H. Ellis, honorary orthopaedic surgeon to St. Mary's Hospital, for his encouragement and helpful criticism; and to my fellow casualty house-surgeons for their co-operation and stimulation.

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A message from Washington announces the appointment of Dr. Wilbur A. Sawyer, of New York, as Director of Health of the United Nations Relief and Rehabilitation Administration. He will be assigned to Washington and will be in charge of the Health Division of UNRRA and be responsible for planning and directing health and medical activities. His duties will require frequent visits abroad to the regional offices and field work. Dr. Sawyer has had long experience in international health activities through his connexion with the Rockefeller Foundation's International Health Division, of which he has been director for nine years. During his service with the Rockefeller Foundation he directed a hookworm campaign in Australia, made investigations of yellow fever in West Africa, carried on research in New York that revealed a method of vaccinating against yellow fever, and negotiated and planned co-operative projects with the health authorities of many countries of both hemispheres.

AN OUTBREAK OF PUERPERAL SEPSIS DUE TO A SINGLE TYPE OF HAEMOLYTIC STREPTOCOCCUS

ITS INVESTIGATION AND REMEDY

BY

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AND

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From 1935, in the obstetric unit of the British Postgraduate Medical School, a carefully conceived and operated routine has obtained good results in the prevention of epidemics of puerperal sepsis. Among 12,283 deliveries, only 19 isolated cases of haemolytic streptococcal infection of the genital tract have occurred, and none of these could be traced to respiratory tract infection of attendants. In 1938 and 1939 not one occurred. One woman has died of puerperal sepsis since the founding of the unit—a non-haemolytic streptococcal peritonitis developing after Caesarean section for placenta praevia in an emergency case which had been examined vaginally by outside attendants; and one has died of lobar pneumonia complicating localized uterine non-haemolytic streptococcal infection.

Preventive Routine

Booked cases without septic foci and with intact membranes are admitted in labour to a "clean" suite (D 6), and after delivery are drafted to "clean" lying-in wards (D 3 and D 5). These wards are made up of several 4-bed units. Unbooked cases without septic foci and booked cases with ruptured membranes are delivered and spend the lying-in period in a "suspect" suite (D 4). Vaginal swabs of all such patients are sent for routine bacteriological investigation, and pyrexial cases are removed from this and the "clean" wards to the isolation block. All cases found to have respiratory tract or other infection are admitted, delivered, and nursed in the isolation block of 10 single-bed rooms and attached labour theatre. These cases, too, have bacteriological investigation of the genital and other tracts performed as a routine measure, whether they are febrile or not.

Each suite has a separate nursing staff; the isolation block has its own house-surgeon, who does not enter the other suites. The visiting and resident obstetricians change their overalls before entering each ward and wear masks covering nose and mouth when in the isolation block, when examining women in labour, and in the delivery theatres. All students and members of the staff submit to a bacteriological investigation of the respiratory tract before joining the unit and on return from holiday. Respiratory tract or other infections bar entrance to the unit pending a bacteriological report on the nature of the infection.

Each patient when admitted in labour has a shower-bath and, after shaving, has the vulva and surrounds painted four-hourly with dettol 30% cream until delivery has taken place. In addition, women in the isolation block with upper respiratory tract infections have their hands anointed with the cream. Dettol cream is also used as a lubricant for pelvic examinations and instrumental deliveries; dettol 10% lotion is employed for swabbing the vulva in the early puerperium.

The following is a report of a recent epidemic of haemolytic streptococcal puerperal sepsis that overleaped these precautions, its investigation and remedy.

Case Records

Case 1.—On Jan. 10, 1944, Mrs. E., primipara, was admitted in the first stage of labour to the clean suite D 6. She was delivered 5½ hours later by Sister M. and a student and sent on to lying-in ward D 5. On the 12th her temperature rose to 103° F. She was at once transferred to the isolation block. Bacteriological investigation of her lochia showing haemolytic streptococci, she was removed to the North-Western Fever Hospital, and recovered under sulphonamide therapy, as did all the other women involved in the outbreak.

Case 2.—On Jan. 13 Mrs. T., primigravida, with a slight cold, was taken in error to the receiving room of D 6, but was transferred very shortly to the "suspect" D 4, as the isolation block was fully occupied that night. Five hours later she was delivered under the close supervision of Sister M. A superficial perineal tear was stitched with silkworm-gut. She was kept in lying-in ward D 4. On the 17th she developed a temperature of 99.4° F.; the routine vaginal swab taken of all patients in this suite showed in her case haemolytic streptococci.

Case 3.—On Jan. 14 Mrs. R., primigravida, after 6 hours' labour in D 6, was delivered by Sister M. She, too, had a small tear stitched with silkworm-gut. She was sent to lying-in ward D 3; on the 17th she had a temperature of 102° F. Haemolytic streptococci were cultured from the vagina.

Case 4.—On Jan. 17 Mrs. H., primigravida, was delivered in D 6, after a 10-hours stay, by Sister M. On the 20th her temperature was 102° F. in lying-in ward D 5 (in another than the 4-bed room once occupied by Case 1). Haemolytic streptococci were found in her vagina.

Case 5.—On Jan. 18 Mrs. W., primigravida, was delivered in D 6, after 11 hours in labour there, by Sister M. and had a first-degree tear stitched. On the 19th her temperature was 99.6° F., and haemolytic streptococci were cultured from her genital tract. She manifested the infection while in lying-in ward D 3, though not in the same 4-bed room as Case 3.

Case 6.—On Jan. 23 Mrs. C., primigravida, was delivered in D 6 by Nurse B., after a stay of 8 hours. Dr. P. sutured a second-degree tear and cared for her during a post-partum haemorrhage. While in ward D 3 her temperature was 101° F. on the 25th, and haemolytic streptococci were recovered from the vagina. This is the only infected woman who was not delivered by Sister M.

Case 7.—On Jan. 25 Mrs. D., primigravida, was admitted from the ante-natal clinic at term with hypertension and albuminuria. She went into labour in the ante-natal ward and was sent up to the delivery room of D 6, not entering the receiving room there at all. An hour and a half later she was delivered by Sister M., and a tear was sutured by Dr. P. On the 27th, in lying-in ward D 4, she developed a temperature of 101° F., due to a haemolytic streptococcal infection of the genital tract.

Investigation and Remedy

The bacteriological report on the vaginal swab of Case 1 was known on Jan. 14, and at once nose and throat swabs were taken of the nursing, domestic, and medical staffs of the labour and lying-in wards concerned, and vaginal and nose and throat swabs of the three puerperal women who had shared a 4-bed lying-in ward with Case 1. The nose and throat of the patient herself were also examined. Haemolytic streptococci were not recovered from any of these sites. When the other cases appeared, similar investigations were made, and all proved fruitless. Repeated cultures from the respiratory tract of Sister M. were negative. Late in the course of the epidemic a few colonies of haemolytic streptococci were recovered from the throats of a member of the consultant medical staff, Dr. K., who had not attended any of the affected women, but who had visited all the wards involved; of a nurse who worked in lying-in ward D 3; and of a ward maid of D 3. The dust of the receiving and labour wards was negative; a few colonies of haemolytic streptococci were found in an office attached to D 6 which is used by the medical and nursing staffs. This room was fumigated with formalin vapour at once.

Diligent search for the source of the epidemic went on. The bed-pan- and bidet-sterilizing apparatus in the labour ward was proved relatively effective only, for a test implant of streptococci survived, although streptococci were not found on any utensils that had already been "sterilized" and held ready for use. The apparatus was overhauled, and the steam pressure, upon which its efficiency depends, has been adjusted. It is now satisfactory.

However, an abundant growth of haemolytic streptococci was recovered from the under-rim of the lavatory seat in the receiving room of D 6, through which all but two of the infected women had passed on admission. The lavatory seat is two feet away from the porcelain slab on which all patients admitted to D 6 receive a shower-bath. It was cleaned daily by a maid, using Jeyes' fluid; the positive swab was obtained shortly after such a cleaning had been performed and before its next use. On the discovery of its contamination the room was disinfected with formalin vapour. There have not been any infections since, and the furniture of the room is now cleansed with pure dettol after each time of use. To strengthen the barrier, each woman now admitted in labour has the vulva painted with dettol cream *before* the parts are shaved or the bath given or the lavatory visited, as well as thereafter.

Bacteriological Report

In searching for a source of infection for these cases of puerperal sepsis 350 specimens were examined for the presence of haemolytic streptococci. These included nose and throat swabs of staff; nose, throat, and vaginal swabs of contact patients; samples of dust from various sources; plates exposed to the air in labour wards; and swabs from lavatory seats and bed-pans. Lancefield A haemolytic streptococci were isolated from 5 of these specimens—three throat swabs of members of the staff, the lavatory seat in D 6 receiving room, and the dust in the office of this suite. The number of haemolytic streptococci isolated from the lavatory seat was overwhelming. Lancefield G haemolytic streptococci were isolated three times—from the throat of a nurse and from the vagina of two apyrexial patients. One patient had Lancefield C streptococci in the throat.

All the Lancefield A haemolytic streptococci were submitted for typing to Dr. Dora Colebrook and Mr. Maxted, of the Emergency Public Health Laboratory, Ravenscourt Square. We have to thank them both for this co-operation, and Dr. Dora Colebrook for most helpful comment. They reported that the seven streptococci isolated from the cases of puerperal fever all belonged to the same type, provisionally diagnosed as 4/24. Of the other five Lancefield A haemolytic streptococci, the two isolated respectively from the lavatory seat in D 6 and the dust in D 6 office were identical in their reaction with those isolated from the infected women. The streptococci recovered from the throats of members of the staff (Dr. K., a nurse, and a ward maid from D 3) were of different types and not related to the epidemic. None of the three cases in which operative delivery was performed by Dr. K. about this time were infected by the strain she carried, nor was the type carried in the throat of nurse and maid conveyed to any patient in their ward.

Discussion

The cause of the epidemic is not quite clear. Although the lavatory seat in D 6 receiving room was heavily contaminated with the causal organism, it is difficult to imagine that direct spread took place from seat to patient, and in two cases (Case 2, delivered in D 4 after only a few minutes' stay in D 6; and Case 7, conveyed from the ante-natal ward straight to the labour room of D 6) this was not even a possibility. Unfortunately, immediately this bacteriological report was known the receiving room was closed and fumigated with formalin vapour, so that further investigation of its flora could not be carried out. It is very probable, in view of the gross contamination of the lavatory seat, that other objects in the room, and even the air, contained streptococci. After fumigation streptococci were not isolated from any part of the room. The swab from the lavatory seat was taken from underneath the "plastic" rim, and, although the seat is cleaned daily with an antiseptic, it is possible that the lower surface had been neglected, so that enough organic material remained to permit growth of organisms. In this case it might have acted as a reservoir of streptococci, contaminating the receiving ward and possibly the gowns of patients and nurses. The strongest piece of evidence pointing to this source of infection as the cause of the epidemic is the fact that after fumigation of this ward no further cases occurred. How the seat originally became contaminated is a matter for speculation; it is quite conceivable that it took place through Mrs. E. (Case 1) or an unknown non-febrile carrier before her.

There is no other strong link connecting all the cases. During the two weeks of the epidemic 71 women were delivered in the unit, 28 of these at night. Of the 28 night cases 11 were delivered by Sister M. and 6 became infected. Two of these had not used the contaminated seat. The remaining case was delivered by day and by another hand. She had used the contaminated seat.

The apparatus for sterilizing bed-pans was not entirely satisfactory at the time. It is possible that the spread of infection was aided by this, although once again it is difficult to believe

that direct spread from bed-pans was the cause of the epidemic, as pathogenic organisms were not recovered from any in use.

Summary

An outbreak of haemolytic streptococcal infection among puerperal women is described. All the 7 cases were infected with the same type of streptococcus. It is suggested that the infection was spread, directly or indirectly, from a lavatory seat in the receiving ward.

NARCO-ANALYSIS WITH NITROUS OXIDE

BY

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Since anaesthetics were first used in surgery it has been common knowledge that during the periods of induction and recovery the tongue of the patient tends to be loosened and expressions are uttered which would ordinarily be repressed. This observation merely bears witness to the truth of the saying, *In vino veritas*. During recent years psychiatrists have made use of this phase of lowered self-criticism and self-control for various purposes. The anaesthetic agents that have been chiefly employed in psychiatry have been the barbiturate group of basal narcotics.

Narco-analysis in the Twilight State

I first became interested in the possible utilization of the twilight state produced by these agents, in suitable dosage, by the accidental observation at Guy's Hospital that it was exceptionally easy to convey suggestion to patients who were recovering from avertin anaesthesia. The matter was there subsequently pursued with greater precision by Campbell (1938), who recorded a series of experiments using intravenous evipan (soluble hexobarbitone) and summarized the literature then available. Horsley (1936, 1943) has carried on a far wider range of investigations. He has coined the convenient term "narco-analysis" and has been chiefly responsible for the present widespread use of the method.

As with all new techniques, some exaggerated claims have been made for its usefulness. However, it appears to have a definite role in the treatment of certain psychiatric disorders, and has been employed at the Cassel Hospital since 1937.

The effect of the intravenous injection of a soluble barbiturate seems to be to produce a state of temporarily reduced self-criticism in which suggestions are more readily accepted and in which painful or repressed ideas come more readily to consciousness. This effect is closely comparable to that which may be produced by light hypnosis, but it is achieved without the two main disadvantages of hypnosis—namely, a semi-magical atmosphere and the risk of the development of an excessive, often sexually coloured, dependence upon the hypnotist.

In the treatment of neurosis the method is useful in two types of problem: first, in conversion hysteria, particularly in hysterical fugues, for the rapid removal of symptoms or recovery of memory by suggestion and persuasion under narcosis; secondly, in anxiety neuroses and other disorders in which fairly deep psychological analysis is required, for the rapid access, by free association under narcosis, to repressed ideas and complexes which may lie at the root of the condition. In both types of disorder the use of the drug may produce dramatic results ranging from the vivid emotional recollection of some recent terrifying incident to the recapture of some long-forgotten childhood fantasy.

The method is essentially and principally a time-saving one. It is doubtful whether, in the neuroses at least, results are obtained which could not ultimately have been gained without its use. However, in psychiatry particularly, any method of investigation or treatment which saves the time of physician or patient is of the utmost practical value.

The disadvantages of narco-analysis by means of barbiturates are twofold. There is first the objection, which has recently been brought more clearly to the attention of the medical profession, that the intravenous injection of barbiturate drugs, particularly when it may have to be repeated many times, is not without hazards. This links up with the second objection—namely, that the method is not as time-saving as one would like. In order to carry it out with adequate safeguards for the patient an assistant is necessary; the patient must be prepared as if for a short general anaesthetic, and resuscitation materials must be at hand. This preparation must be repeated for each injection, although in some cases the progress made at a single session may be very limited.

The Nitrous Oxide Method

During the past 12 months a way has been found of overcoming these objections by the substitution of inhaled nitrous oxide for intravenous barbiturates as the anaesthetic agent. Experiments with nitrous oxide were begun because many patients and normal individuals spoke of the remarkable feeling of release, of freedom, and of power which they experienced under gas. Such feelings generally point to just that reduction of the normal critical faculties which it is the aim of narco-analysis to achieve.

It was found that a slow induction of analgesia, using a mixture of gas and air, gave the best results, and for this purpose the Minnitt obstetrical gas-air-analgesia apparatus proved ideal. This has a number of advantages over the ordinary gas-anaesthesia apparatus. First, the flow of gas is regulated by the patient's breathing, so that there is no waste. Secondly, the patient himself controls his intake of gas and can stop at any moment; fear is thus almost entirely eliminated. Lastly, the apparatus is simple and requires almost no manipulation by the psychiatrist.

The proportion of gas to air delivered by the machine in normal usage is about 45%. This is enough for many patients, but can be increased if necessary by closing one or two of the air-inlet holes with the fingers. With this method it is not advantageous to render the patient unconscious, as it wastes time to do so and is apt to diminish the co-operation of the patient. The best technique appears to be to allow the patient to breathe the mixture until restless movements and some change in the rhythm of respiration herald the approach of loss of consciousness. At this point the patient's own grip on the mask and on the air-hole at the back of it relaxes (as indeed with this apparatus it is intended that it shall do), and the inhalation of gas ceases. The subsequent twilight state, which lasts for a minute or two and which is very easily prolonged by suggestion, is utilized for narco-analysis. About 20 breaths of the mixture usually suffice, and the experiment can be repeated as soon as the effect has worn off.

In practice the method and its intentions are explained to the patient and the use of the apparatus is demonstrated to him. He is shown how the whole process is under his own control, and this at once allays apprehension. He is invited to have a "trial run" without any attempt at psychotherapeutic intervention. After this he is ready to begin.

At first, during the whole of the induction period, gentle suggestions are given that he is becoming relaxed, that painful ideas will come more readily to his mind, and that his thoughts are flowing easily and without restraint. Directly he drops the mask he is urged to express whatever comes into his mind. In the case of a hysterical fugue he is told that he will relive the forgotten incidents, just as would be done under hypnosis or narco-analysis with a barbiturate.

In our experience abreaction and the recall of repressed memories are as vivid and as readily obtained as with any other method, and the time and preparation saved are of course very great. The method has been employed with a considerable number of patients during the past year, of which the two following are representative examples.

Illustrative Cases

Case 1.—A male aged 19; admitted July, 1943. Reason for referral: loss of memory; periodic fugue states in which he wandered away from home after an emotional crisis, usually in relation to some delinquent behaviour. A normal child until the age of 5, when he had rheumatic chorea and his parents were told that he must not be crossed in anything. Subsequently avoided responsibility and punishment because of his "delicacy." First wandered away from school at 14 in a fugue following some minor difficulties there. Had subsequent fugues after failing an examination and after being found out in a series of lies. Three months before admission, after a row with his grandfather, who took a stern and realistic view

of his behaviour, he fell downstairs and was picked up with complete amnesia for the whole of his past life. Concussion was at first diagnosed, but the picture was soon seen to be essentially a hysterical one, and he was admitted to hospital after attempts at recovery of memory by persuasion had failed. Administration of nitrous oxide, using the technique described, produced a dramatic return of memory for the events preceding the fall and for the main events of his past life. Subsequent administration enabled him to recall and relive his activities during previous fugue states, which he claimed had never been recollected. Psychotherapy was then continued along orthodox lines.

Such dramatic recollections and abreactions are very pleasing at first sight, but they do not constitute the principal justification for the use of this method. An experienced and sympathetic psychiatrist can usually resolve a hysterical amnesia of this type by almost any method provided that he has won the confidence of the patient. Nitrous oxide merely provides a simple, quick, and efficient method which may be preferred on this account. Its usefulness is, however, most apparent in cases requiring difficult psychological analysis, where the time factor is even more important and where a rapid resolution of repressed conflicts is very desirable.

The second case belongs to this type. This patient presented a typical severe anxiety neurosis.

Case 2.—Mrs. A., aged 32; admitted May, 1943. Reason for referral: feelings of exhaustion and weakness; loss of weight; worry over bowels and food. The symptoms had been present to some extent for about 10 years. The immediate reason for their onset seemed simple and straightforward. She was the child of a financially poor family, and after winning a series of scholarships had had a brilliant undergraduate career at a provincial university and had come with a research scholarship to Oxford. There she found herself, both socially and intellectually, in much deeper waters, and since she had always been used to unquestioned leadership at school and at her own university she reacted with anxiety symptoms. She subsequently married a professor in her own field of work and had three children in very rapid succession. She found difficulty in living up to her husband's family, and the stresses to which she was subjected increased the anxiety symptoms so that a typical vicious circle of anxiety was created. Such a problem is often fairly readily resolved by superficial analysis combined with explanation, persuasion, and re-education. In this case, however, a deeper and much more complex set of factors were speedily uncovered. Behind the difficulties in her married life there lay a pathological emotional relationship with her father, the solution of which was essential to her recovery. Analysis was at first slow and difficult, but the repeated use of nitrous oxide inhalations produced a rapid flow of forgotten associations of a highly painful sexual character. The patient herself repeatedly asked for the apparatus during the process of free association, and learned how to use it without assistance or advice during difficult periods in the treatment. In this fashion a course of analytical psychotherapy which in the ordinary way would certainly have lasted a year was successfully concluded in six months, and the patient was then able to return home.

Comment

It seems certain, from our experience, that other methods of narco-analysis could not have achieved similar results without a far greater expenditure of time for therapist and patient. Repeated sessions under narcosis were necessary, and would have been necessary whatever narcotic was employed. One can resolve a hysterical amnesia or obtain an abreaction to a particular traumatic event in one session, but one cannot unravel the trend of events, often spread over a number of years, which go to the evolution of a problem of this type. In such a case the availability of narcosis "on tap" in the consulting-room, ready to be used at any moment in the course of analysis, is a very great advantage. Patients themselves express a strong preference for the nitrous oxide technique, and, where both have been used in a single case, access to hidden mental conflicts is fully as effective with gas as it is with a barbiturate.

Summary

The value and limitations of the method of narco-analysis in psychotherapy are briefly discussed. The intravenous injection of a barbiturate has been the method generally employed. Nitrous oxide inhalation is claimed to be fully as effective for this purpose; it is quicker, simpler, and safer, and can be used in the consulting-room at any time during the course of psychiatric treatment.

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Medical Memoranda

Large Goitre in a Child of 10

The following case history, with a photograph of the patient, may be considered worth publishing.

A girl aged 10, of miserably poor parents from Abu Tig, in Upper Egypt, came to this hospital in November, 1943. She had a history of a gradual enlargement of the neck, and general ill-health, of four years' duration. There was no complaint of dyspnoea or dysphagia.

On examination the child was seen to be wizened, anaemic, and poorly developed. Though alleged to be 10 years old she weighed only 43 lb., the average weight of a child of 6. There was a large, somewhat nodular, fairly firm bilobed mass, obviously a goitre, extending from mandible to manubrium and well beyond the sides of the neck (see photograph). The tumour was freely movable on manipulation and deglutition, and there was no stridor. A number of enlarged subcutaneous veins were observed moving in different directions over the tumour. The circumference of the neck and tumour varied from 18 to 20 inches. The child was found to be suffering from ankylostomiasis, as is usual with some 90% of Egyptian "fellahin." Her haemoglobin was only 60%, and so the ankylostomiasis and anaemia were treated before operation. She also had some dermatitis over the tumour and chest, which can be noted in the photograph; this responded quickly to simple ointments. There were no signs of thyrotoxicosis.

Operation.—As there were no facilities for intratracheal anaesthesia the patient was given 2 drachms of paraldehyde per rectum one hour and 1/200 gr. of atropine half an hour before operation. Only a very small amount of open ether was necessary after this premedication, and there was no anxiety over the airway throughout the operation. The usual "collar" incision was employed, and all but a small portion of the thyroid mass was excised. There was no difficulty apart from the number and size of the vessels, and haemorrhage was minimal. A small drain was inserted through a stab wound below the incision, being removed after 48 hours. Convalescence was rapid and uneventful, and the father insisted on removing the child some three weeks after the operation, before any great improvement in the general condition could be expected.

Examination of the Tumour.—The growth was in two parts, corresponding to the right and left lobes of the thyroid gland and parts of the isthmus. In appearance it was similar to normal thyroid tissue, but with numerous cysts, varying in size and filled with dark viscid fluid. The right-hand portion measured 6 by 2½ by 2½ in., and the left portion 5 by 2½ by 2½ in. The microscopical report stated, "The appearances are those of a papillary adenoma of the thyroid gland."

My reasons for reporting this case are the large size of the goitre, the comparative brevity of the history, and the youth of the patient. I am indebted to the pathologist and the photographer for their help.

C.M.S. Hospital, Old Cairo. E. N. CALLUM, F.R.C.S.Ed.

Varicella and Herpes Zoster: An Experiment

Observations, both clinical and experimental, have repeatedly been made which suggest the existence of a close relationship between the aetiological agents of varicella and herpes zoster. In view of this the following experiment was carried out to find whether convalescent herpes zoster serum would be effective in preventing varicella in varicella contacts. The scale of the experiment was small, but the findings are perhaps suggestive enough to justify publication.

Blood was taken from two herpes zoster patients during the second week after appearance of the eruption. After clotting, the serum was put up in ampoules and stored at a temperature of 4° C. till an opportunity arose for its use (about two months).

On May 31, 1942, varicella developed in a child of 6 years in one of the children's wards in this hospital. Of the other 19 children in the ward, 6 had a previous history of varicella. Of the 13 who had not previously had varicella, 7 were given an

intramuscular injection of 20 c.cm. of convalescent herpes zoster serum on the day after the case arose; the other 6 were used as controls. (Case D. R., with no previous history of varicella, was admitted to the ward in error on June 21. He was given 20 c.cm. of the serum intramuscularly next day.) The results of the experiment are set out in the Table.

Table of Results

Original Case	Age (Years)	Date Serum Given	Date of Varicella	No. of Vesicles
A. O.	6	—	31/5/42	59
Previous history of varicella—no serum given:				
V. C.	4	—	15/6/42	56
K. E.	3	—	16/6/42	80
H. P.	3	—	—	
M.C.	2	—	—	
V. H.	2½	—	—	
S. T.	6	—	—	
No previous history of varicella—no serum given:				
J. A.	1½	—	23/6/42	(No count)
L. C.	2	—	12/6/42	108
R. H.	6	—	—	
A. C.	5½	—	15/6/42	63
M. W.	2	—	19/6/42	106
L. W.	3	—	—	
No previous history of varicella—serum given:				
J. Y.	3	1/6/42	20/6/42	9
P. M.	1½	1/6/42	—	
J. C.	4½	1/6/42	—	
D. L.	2	1/6/42	—	
V. W.	5½	1/6/42	—	
C. E.	2	1/6/42	—	
I. M.	1	1/6/42	—	
D. R.	3	22/6/42	—	

All the children (except one, J. A.) who subsequently developed varicella were photographed after cropping had ceased, the lesions having been painted with gentian violet to improve visibility. The lesions (except scalp lesions) were counted and the numbers are shown in the Table. It is interesting that the one child (J. Y.) who had no previous history of varicella, and was given serum and developed the disease, was only very mildly affected.

I wish to thank the Medical Director for permission to publish this account.

A. W. ABRAMSON, M.R.C.P., D.C.H.,
A.M.O., West Middlesex County Hospital.

Two Cases of Subcutaneous Rupture of Jejunum: Recovery

The following case records are thought to be interesting enough to merit publication.

CASE I

A girl aged 11 was knocked down on the evening of March 30, 1940, by a barrow, the handle of which had been thrust against the abdominal wall in front. She complained of abdominal pain, which had come on immediately; afterwards she had vomited. When seen the next day the abdomen moved poorly on respiration, and both recti were rigid, with tenderness especially in the lower halves. The child was conscious and did not seem to be suffering from shock. The pulse was rather rapid (120) and slightly irregular, the temperature normal, and respiration 24. Nothing unusual was found in the urine.

On the evidence of the history and the clinical signs operation was decided on without further delay—24 hours after the accident. It was performed under general anaesthesia consisting of gas-and-oxygen and minimal ether (Dr. P. Singer). There was some turbid fluid but no free blood in the peritoneal cavity. A transverse tear involving half the circumference of the gut was found in the jejunum 10 in. distant from the ligament of Treitz; the neighbouring peritoneum was soiled with flaky exudate indicative of incipient peritonitis. The rent was sutured, and small abrasions situated lower down in the small intestine, together with one on the wall of the transverse colon, were peritonized. The abdominal wall was then closed and a suprapubic drain inserted. There was pyrexia of 101 to 102° for 6 days after the operation; the pulse was rapid (150) for 5 days, and then gradually subsided. Both wounds discharged for a time and there was some post-operative bronchitis. An appropriate dose of soluseptasine was given intramuscularly at operation and repeated in two hours; this was followed by a course of sulphanilamide rectally and by mouth. Graduated feeding by the mouth replaced rectal salines as the condition improved, and was well tolerated. No abdominal distension occurred, and 8 days after operation the child was taking light diet well.

CASE II

On Dec. 28, 1943, a man aged 22, while attending to a "shaping" machine, was caught between the iron plate and the machine by a double impact which hit him in the back. After the blow he suffered intense abdominal pain, central in position, constant but eased by "stretching" out. There was no vomiting and the spine and skin over the back (where he was hit) appeared normal. After the accident he walked 30 yards to a shelter; at no time did he lose consciousness. During conveyance to hospital by ambulance he noticed pain in the left shoulder for the first time. On admission he was obviously distressed and in pain, but was only slightly shocked; his face was a little cyanosed and respiration was laboured. There was generalized abdominal rigidity on examination, with maximum tenderness in the left upper quadrant of the abdomen: in this area the skin was marked by superficial abrasions. The pulse was 64, temperature 97.8°, respiration 20, and blood pressure 120/80. The urine was clear. The diagnosis seemed to rest between ruptured intestine and ruptured spleen.

The abdomen was opened by a left upper paramedian incision, 2½ hours after the accident, under general anaesthesia, using cyclopropane, gas, and oxygen through an endotracheal tube by the closed-circuit technique (Dr. D. M. M. Carr). When the peritoneum was incised free blood issued from the peritoneal cavity. The spleen was palpated and found to be unharmed. The intestine was then searched, starting from above, and at a point 12 in. from the duodeno-jejunal flexure the jejunum was seen to be completely torn across, its edges contused, somewhat swollen, and everted. The lumen appeared empty, and except for blood in the neighbourhood there was little soiling of the peritoneum. The mesentery was only slightly torn and the vessels were scarcely harmed (see Fig.).

The open ends of the gut were ligated and invaginated, and a lateral anastomosis was then performed. The mesentery came together well, and was left unsutured. Sulphacetamide (albucid) was applied to the suture line and the abdomen was closed without drainage. Anaesthesia was smooth, and the patient's condition was satisfactory throughout: consciousness was regained before leaving the operating-room. Post-operative intravenous serum and glucose-saline were given. Stomach suction was maintained for 60 hours, but feeding by mouth began on the second day—first clear fluids, then opaque fluids (fifth day), and on the eighth soft solids. The pulse, though of good volume, remained around 130/140 for two days, dropped to 100 in the next two days, and then returned to normal. The wound healed well. There were no chest or other complications.

COMMENT

As a rule this injury is said to be the result of a sharp impact, crushing the intestine against the vertebral column, before the abdominal muscles have time to be on guard. In the first case this may be the explanation, but in the second the force seems to have been applied to the back from behind.

In view of the high mortality rate associated with cases of 12 hours' duration—stated to be as high as 70%—the child, who was not operated on until 24 hours afterwards, may be regarded as having made a fortunate recovery.

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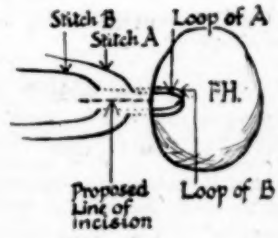
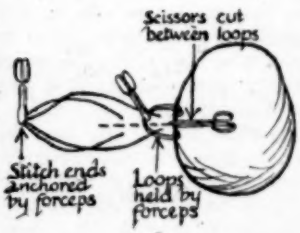
A Technique for Episiotomy

In the comparatively rare instance in which this little operation is indicated the following method has been found useful: When the vulva is stretched by the presenting part a director is passed to lift the rim slightly away from the advancing parts and stitches are then quickly passed, encircling the proposed line of incision (see diagram). Anchor the free ends lightly with artery forceps; draw the looped ends from under the edge of the vulva and anchor with a second pair of artery forceps. As the presenting part crowns (and a perineal tear is seen to be inevitable), draw the looped ends upwards, slightly retracting the edge of the vulva, and make a scissors cut between the loops (see diagram). After the birth and cleansing of the vulva, the wound edges are readily approximated by tying off the stitches. Further stitches can be inserted if necessary. This technique permits of an accurate approximation of the wound edges, and there is no need to give chloroform after the birth to relieve the pain of stitching up. For the sake of clarity the incision shown in the diagram is a lateral one.





Borrowash, Derbyshire. G. S. NEILSON DOW, M.B., Ch.B.

Reviews

THE ANTIGONADOTROPIC FACTOR

The Antigonadotropic Factor, with Consideration of the Antihormone Problem. By Bernhard Zondek and Felix Sulman, Hebrew University, Jerusalem. (Pp. 185. $3.00 or 16s. 6d.) Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1943.

This is a specialist monograph whose subject-matter involves both immunology and endocrinology. Many people are familiar with one of these subjects, but there can be few familiar enough with both to be able to read the book with ease. It is not confined to its title-subject, but reviews the literature on the other antihormones, and includes the first publication of a number of the authors' own experiments. The term "antihormone" is given inverted commas throughout because the authors conclude that such factors are not hormones but immune bodies.

When Collip first called attention to the formation of antihormones he suggested that they played a physiological part in the normal bodily economy, but in spite of a great deal of work carried out since that time the hypothesis has little evidence to support it. At present it is undoubtedly true that protein hormones, particularly those of the pituitary gland, when injected into man or animal provoke the production of antihormones which in time considerably diminish the response to successive injections. It is also true that almost all the experimental work has so far involved the use of impure extracts. To-day in America a number of the pituitary hormones have been prepared in crystalline, and presumably pure, form, and it will be interesting to see if these pure preparations also induce antihormone production. If they do, the theoretical interest of the subject will undoubtedly revive, but meanwhile the problem is a purely practical one. So long as clinicians are aware that antihormones are produced by the injection of the pituitary and gonadotropic preparations commercially available, there seems little point in their studying the problem any more closely.

The presentation is clear, though the style is poor. The text is, perhaps inevitably, interrupted by reference to long lists of names and dates; nor has Zondek kept in check his habit of coining terms—to refer to the ovary acted upon by chorionic gonadotropin as the "effector organ" is unnecessary and inaccurate; "gonadotropic-anti-units GAU" and "prolan-anti-units PAU" abound, and all are in rat units, although international units of chorionic and serum gonadotropins have been in existence now for five years. In spite of the wealth of references, the statement that "pregnant mares' blood gonadotropin . . . is also supposed to be of pituitary origin" is made without any reference, presumably because the majority of workers do not hold this view. Notwithstanding these blemishes the book will prove very useful as a work of reference.

COMMON SKIN DISEASES

Common Skin Diseases. By A. C. Roxburgh, M.D., F.R.C.P. Seventh edition. General Practice Series. (Pp. 454; illustrated. 18s.) London: H. K. Lewis and Co. 1944.

There is no need to emphasize the excellence of a textbook which goes through seven editions in twelve years and has achieved two of those editions and three reprintings since the war began. Perhaps the chief differences between this and the last edition are to be found in the section dealing with industrial dermatitis, which has been expanded, and in the chapter on vitaminoses, which has been rewritten. A new disease seems now to have been added to dermatology, known as "immersion foot," which is a complaint brought on by immersion of the legs and feet for long periods in cold sea-water in water-logged boats or rubber dinghies. This must be a very close relation of trench foot, with which medical officers were only too familiar during the last war, but the principle of the local treatment has now been radically changed. Formerly the extremities were kept warm, but it has now been found that very much better results are obtained if the feet are exposed to cool air while the rest of the body is kept warm and comfortable.

Dr. Roxburgh is one of those physicians who have been fortunate enough, as readers of this *Journal* are well aware, to be entrusted with a supply of penicillin, and he has just had time to include in the present volume a short note on the results obtained from it in dermatology. He says that there is no doubt penicillin will prove a very valuable treatment for certain staphylococcal and streptococcal infections of the skin, and gives hope that sycosis, always considered one of the most refractory and chronic dermatoses, may be controlled by the new drug in a large proportion of cases.

The price of this edition has gone up 2s. to 18s., but one cannot say that this is in any way an excessive increment—in fact it is so small that one might almost think it is a "controlled" price.

MEDICINE AND THE WAR

Medicine and the War. Edited by William H. Taliaferro. Charles R. Walgreen Foundation Lectures. (Pp. 193. 12s.) Chicago: University of Chicago Press; London: Cambridge University Press.

The University of Chicago Press has published a book of medical lectures on war topics given by distinguished workers in each field. The lectures include the subjects of food, chemotherapy, malaria, spread of disease by aeroplane transport of insect vectors, shock and blood substitutes, aviation medicine, psychological effects of head injuries, psychiatry, and chemical warfare. Without disclosing secret information the lecturers give a useful account of the problems, well worth reading by medical men and others anxious to know what research is on foot during the war.

The editor of the book, Dr. W. H. Taliaferro, gives an account of malaria. He stresses the part played by immunity, which is often neglected in discussing this disease. The macrophages of the spleen, liver, and bone-marrow play a part in natural immunity; they digest large numbers of parasites, malarial pigment, and red cells containing parasites, removing as many as two-thirds of the parasite population. When acquired immunity is superimposed, the macrophages eat up many more parasites owing to the appearance in the blood of an opsonin, which makes the parasites more easily digested. Dr. C. G. Huff, the parasitologist, discusses the dangers of the spread of disease by aeroplane, and gives an account of the work of the Rockefeller Foundation in eradicating the *Anopheles gambiae* from Brazil, whither it probably came by plane from Africa. In 1938 about 60,000 people out of a population of 70,000 in the Jaguaribe river valley were attacked by malaria. Vigorous efforts in 1939 and 1940 resulted in complete control of this mosquito, and no larvae or adults have been found since September, 1940.

In the chapter on aviation medicine we are told of the physiological changes which occur in a pilot when he makes a sharp turn, as in pulling out of a dive; these include loss of vision and unconsciousness due to the centrifugal force acting on the blood in his head. In the chapter on head injuries there is an account of the effect on a patient whose frontal lobes were damaged as a result of the removal of a brain tumour. He gained a position as salesman for a small firm, and was so successful in collecting orders that he was made vice-president of the company; so inspired was he by his success that he soon collected far more orders than could be executed. The firm, to avoid bankruptcy, dismissed him. He lacked the judgment to know when not to sell.

Notes on Books

Health Education on the Industrial Front (Oxford University Press: 8s. 6d.) records the five lectures given at the 1942 Health Education Conference held under the auspices of the New York Academy of Medicine. In the lecture on "Food and Nutrition in the Home and in the Workplace" the data about workers' families are similar to those obtained in this country, and in addition it is stated that observations on clerical and laboratory workers in New York City showed a high incidence of nutritional inadequacy. From 25 to 50% of these persons showed mild but definite lesions characteristic of food deficiencies. A lecture on "Disease and Handicap Detection and Control in Industry" is followed by one on "Mental Problems and Morale in Industry," which gives instructive advice to the industrial physician for the maintenance of high industrial morale. The final lecture, on "Educational Methods and

Control of Accidents in Industry," gives some figures of accident frequency which show that in America, after making due allowance for differences of population, the accident rate from motor traffic and from occupational causes is about twice as great as in this country.

Atlas of Obstetric Technic by Dr. PAUL TITUS, is a beautifully produced volume (Henry Kimpton; 36s.). It undertakes to present in pictorial form the subject of modern obstetric technique for both normal and abnormal cases. It also includes a section dealing with sterility. In its purpose it is the obstetrical complement to Bonney's *Operative Gynaecology*, but it compares favourably with this in the excellence of its individual drawings rather than in their selection or arrangement. For example, Section V, dealing with the most important subject of abortions, illustrates well the technique of evacuating a uterus, providing it is anteverted. The necessity for examining the pelvis carefully before operating is overlooked, and were this omission also made by the operator he would perforate the wall of many a retroverted uterus. There is one way to learn how to operate—the hard long road of the apprentice—but that road can be made easier and possibly shorter by an atlas such as this.

Preparations and Appliances

APPARATUS FOR INTESTINAL INTUBATION

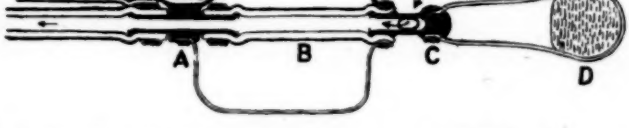
Dr. J. J. WILD writes from the Miller General Hospital, S.E.10:

Owing to the unsatisfactory condition of the technique of intestinal intubation at the present time it was decided to try to improve the existing facilities. The apparatus described below has, up to now, given very satisfactory results in the few cases in which I have had the opportunity to use it.

The Miller-Abbot tubes at present manufactured in this country have, in my hands, proved most unsatisfactory. Even when first delivered many faults were found, such as leaks at the point of attachment of the inflation and aspiration nozzles and at the proximal point of attachment of the balloon. Also the bores of the tubes are constricted on occasion by the binding at the proximal point being applied too tightly. The quality of the rubber is too soft, so that the tube tends to collapse when reasonable suction is applied soon after the tube has come into use. I have not found this fault with the American-manufactured tubes, which are constructed of a harder, poorer quality rubber, presumably to avoid this trouble. Apart from these disadvantages I have, I think, overcome many of the inherent disadvantages of tubes used for intestinal intubation, so that the passage of tubes into the duodenum may be carried out with confidence of success whenever it is desired to do so.

Description of Apparatus

The apparatus in its present form was manufactured from hospital stock tubing and other sundries easily to hand, and has proved highly satisfactory. A constructional drawing is appended (approximately 2/3 scale) which shows the apparatus to consist of two separate tubes, one of adequate wall-strength to permit of effortless aspiration, the other, small-bored bicycle-valve-type tubing for inflation of the balloon. These are swallowed together and give little trouble so long as they are kept together at the time of passing. In the final development of the tube they will be vulcanized together.



At the point of attachment of the balloon a special easily constructed metal adaptor (A) is incorporated which does not affect the ease of swallowing; this provides attachment, for the two tubes, for the proximal end of the balloon (an ordinary contraceptive condom), and for the continuation of the aspiration tube through the collar. Provision is made for a firm grip between metal and rubber, which is carefully bound on with strong thread. Exposed thread is treated with rubber solution to protect it from the contents of the gut.

On the end of the continuation piece of rubber (B) is attached a special metal connexion-piece (C) turned from steel to avoid amalgamation with the mercury. This provides attachment for the balloon proximally and for attachment of the gravity director head (D). This is the most important part of the apparatus and consists of a thin rubber bag taken from the ring or little finger of an old surgical glove in good condition. This bag is filled with clean mercury expressed through cloth to a weight of 30 to 40 g., though less may be found satisfactory. There is a "dead" space above the mercury, and as little air as possible is permitted to remain when the bag is attached as before-mentioned. Such is the apparatus which I have used several times successfully, no failures having occurred so far.

Should the apparatus come into more general use, I have designed a tube to be made by the commercial manufacturers which will render the technique of intestinal intubation so simple that a highly skilled operator will not be necessary. The balloon will not have to be tied on when renewed but will be pushed on in a matter of seconds where this type of tube is to be used. Also, the metal parts used in my improvised apparatus will probably be eliminated.

The action of the gravity director head is as follows. The mercury acts as fluid ballast which will persistently seek the lowest point, and owing to the thinness of the rubber wall of the sack the mercury, on arriving at a depression such as a sphincter, will pass the end of the sack into the depression and by its weight tend to open the sphincter, allowing the end of the sack to pass together with a portion of mercury until all of the sack together with the mercury has passed the obstruction and pulled with it the remainder of the apparatus. Thus what was previously a problem of feeling a way in the dark has become a matter of merely giving the apparatus its head! Hence the term "gravity director head." This principle can, of course, be easily applied to duodenal intubation for collecting specimens of bile, and as soon as opportunity permits I intend to carry out full clinical trials and publish the results.

Technique of Passing the Tube

The patient is told to open his mouth and put out his tongue, which is depressed with a spatula. The tube, dipped in water or lubricated with a non-oily lubricant, is thrown so that the gravity director head falls to the back of the mouth and slides down the pharynx. The patient is instructed to swallow twice and breathe hard. Vomiting may occur, but this will not dislodge the tube owing to the weight of the mercury. When the patient has regained control, he is given sips of water and the tube passed down into the stomach. Aspiration is started at this point with about 150 c.cm. metal syringe. Sufficient tube is then swallowed (about 30 inches), if possible with the patient on his right side and with the foot of the bed blocked up as high as possible. If desired the patient may be carried on his right side to the theatre, and the journey will probably facilitate the passage of the director head into the duodenum. If facilities are available the patient is radiographed in this position in bed, and if the tube is found not to be in the duodenum he is lifted high by his buttocks on his right side and rotated and shaken to facilitate the passage of the tube under the action of gravity. This manipulation is only necessary when the tube will not pass easily. If difficulty is experienced, a little watery barium sulphate may be put into the stomach in order to see the position of the outlet of the stomach as compared with the director head.

As a rule, I think the tube will pass easily provided enough is swallowed. Often, if an immediate success is not obtained, repeated aspiration of the stomach will restore its tone and the tube will be found in the duodenum later if the patient is kept on his right side. Manipulation and *x*-ray control need only be used when it is urgently required to pass the tube.

So far I have had difficulty with one case only (paralytic ileus following gastro-enteritis) and have had to resort to manipulation and *x*-ray control. No failures have occurred so far (six cases). With experience I hope to evolve a technique which will give very few, if any, failures.

I have taken out provisional protection of the gravity director head with a view to preventing anyone restricting the use of the apparatus by patenting it. It may be possible to get the two metal connexions made as in the improvised tube described, should the demand be great enough, so that anyone interested could try the tube out.

I am indebted to my colleagues at the Miller General Hospital for their kind help in many ways.

NEW CHOLECYSTOGRAPHIC AGENT

Burroughs Wellcome and Co. announce the issue of preparations of "pheniodol," a new cholecystographic contrast medium for oral administration. Recent clinical trials (*British Medical Journal*, 1943, **2**, 674; *Brit. J. Radiol.*, 1944, **17**, 60) have shown this substance to possess important advantages as regards effectiveness and tolerance. "Wellcome" brand pheniodol, the pure compound, is available in bottles of 25 g. "Wellcome" brand pheniodol meal presents the substance combined with wetting and flavouring agents which enable an easily taken and palatable suspension to be conveniently prepared; it is issued in tubes containing 4.5 g., equivalent to 3 g. (the normal adult dose) of pheniodol available singly and in cartons of 6 tubes.

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MEDICAL SERVICES FOR THE WESTERN FRONT

The attack on Western Europe has opened, and the share of the medical profession in this has been graphically illustrated in the daily press. Wherever the fighting man goes the doctor goes with him, and shares many of his risks so that he can offer him the indispensable first aid and what is termed "life-and-limb surgery." The nature of his medical training and the free circumstances of the peacetime practice of his profession develop a sense of responsibility and adaptability that serves the British doctor well in war, whether he falls through the air with the paratroops or crouches beside the wounded soldier on the sand of the desert or of the Normandy beaches. So that the wounded and disabled may receive complete medical and surgical aid at the shortest time after injury a vast organization is necessary, and this is a fitting moment to give some account of the medical organization that has evolved out of more than two years' planning for D Day.

There are now over twenty varieties of medical units accompanying the Forces. Many of these varieties are subdivisible into types: for example, there are various types of field ambulances, such as light field ambulances, parachute field ambulances, and air-landing field ambulances. There are various types of field surgical units, from special teams for neurosurgery, maxillo-facial surgery, and chest surgery, to the standard field general surgical unit for reinforcing casualty clearing stations, and, in conjunction with field dressing stations and field transfusion units, for forming advanced surgical centres. There are a large number of field dressing stations, field transfusion units, casualty clearing stations, general hospitals, hospital ships, hospital carriers, and specially equipped L.S.T.s (Landing Ships, Tanks). These are only some of the types. In all there are more than 400 medical and dental units, including a special unit provided by the British Red Cross Society and Order of St. John of Jerusalem. These units have establishments providing specialists as required in every branch of medicine and surgery, nursing orderlies, dispensers, cooks, drivers, etc. The vast majority are mobile, and all have been thoroughly trained; some have wide experience of active operations. These units are allotted to formations according to their needs. Divisions are accompanied by field ambulances, field dressing stations, and field hygiene sections; corps by field dressing stations, casualty clearing stations, general hospitals, and advanced depots of medical stores. G.H.Q. has at its disposal an imposing array of all types, including general hospitals of 600 and 1,200 beds whose staffs include specialists in every branch of medicine and surgery, including dentistry. Finally, divisions, corps, and armies have their own medical staff officers, supervised and controlled by the Director of Medical Services of the force, assisted by the strongest possible teams of experienced consultants, advisers, and administrative officers.

In the United Kingdom the Ministry of Health, through the Director-General of Emergency Medical Services, has provided tens of thousands of beds staffed and equipped to deal with all types of casualties. Special hospitals have been set apart as casualty clearing stations, others as base hospitals. Military and civil ambulance trains and fleets of ambulance cars, including cars of the British Red Cross Society, convey casualties from ports and airfields to the casualty clearing hospitals (transit and port hospitals). Naval, Army, and civilian staffs man the ports to unload patients from L.S.T.s, hospital ships, and hospital carriers to ambulance trains and ambulance cars. These ambulance trains carry drugs (including penicillin), dressings, food, and other comforts. Special arrangements have been made for notifying next-of-kin: as soon as the patient is admitted to a base hospital a card giving all details is dispatched.

A heavy load rests on those responsible for such an intricate system of essential services. We may recall that the German Army was brought almost to the point of capitulation on the Russian front owing to a breakdown of the medical organization under winter conditions. In the framework provided by organization the individual doctor, and teams of doctors and surgeons, bring their technical skill to the aid of the individual sailor, soldier, and airman. No matter what the type of military operation or the conditions under which it takes place, the principle controlling the handling of sick and seriously wounded in the forward zone is rapid collection and evacuation to an appropriate surgical centre. The main links in the channel of evacuation are regimental aid post, advanced dressing station, field dressing station, casualty clearing station, and general hospital at the base. At the regimental aid post adequate first aid, including the administration of morphine and sulphonamide, and measures for the treatment and prevention of shock, is carried out. At the advanced dressing station patients are divided into three groups: (1) those in need of urgent resuscitation before they can be evacuated to the surgical centre; (2) those suffering from severe wounds that require urgent surgery; and (3) all other patients. Group 1 patients are evacuated to the divisional field dressing station, which is never more than a short distance away and has all the equipment for resuscitation. After resuscitation these patients are sent to an advanced surgical centre if they need urgent surgery, or, if they are fit for evacuation, to a casualty clearing station. Group 2 patients are sent direct to the advanced surgical centre from the field dressing station. The advanced surgical centre may be at the casualty clearing station. But if the distance between field dressing station and casualty clearing station is great an advanced surgical centre is formed nearer the forward troops by the attachment of one or more field surgical units and field transfusion units to a field dressing station. From the advanced surgical centre, if a separate centre has been formed, patients are evacuated to the casualty clearing station. Group 3 patients are evacuated direct from field dressing station to casualty clearing station. In effect this system of evacuation, though it sounds compli-

cated, means that all casualties are sent back to a casualty clearing station, but that facilities are available for preliminary urgent treatment and life- or limb-saving surgery further forward on the line of evacuation. Routine surgery is not carried out in the foremost medical units because they are not normally in a position to provide adequate post-operative care and nursing. A balance has to be struck between the sometimes conflicting claims of early surgery and evacuation. From the casualty clearing station patients are transferred to general hospitals, either the smaller hospitals with the field force or the larger units at the base.

Evacuation by sea must have special consideration. In the absence of suitable ports, specially equipped L.S.T.s with a staff of doctors and nursing orderlies on board, hospital carriers reinforced by surgical teams, and, later, hospital ships, will be used. After receiving adequate first aid and life-saving surgery casualties will be embarked on these craft by water ambulances, D.U.K.W.s, and other small craft. Plans have also been made for large numbers to be evacuated by air when suitable facilities are available on the Continent. The R.A.F. are providing a ground organization at aerodromes, both in the theatre of operations and at home, for the care and accommodation of patients from the time they are handed over to them by the Army in the theatre of operations until they are taken over from them in the United Kingdom.

That, briefly, is the normal procedure. But under the conditions which obtain during an assault from the sea on a strongly defended coast this procedure has to be modified. In the early stages treatment of the wounded consists of adequate first aid similar to that already described. Further treatment will consist of "life-and-limb" surgery and measures to combat shock and sepsis. The organization on or near beaches consists of beach dressing stations, advanced dressing stations, and advanced surgical centres. These units follow close behind the assaulting troops and establish their special centres in a few hours. Supplies of blood products for transfusion are maintained by a special organization based initially on the Army Blood Supply Depot in England. In the early stages all patients are evacuated to the United Kingdom as quickly as possible. All that can safely be done on the spot is done. But definitive surgery must await suitable conditions, such as adequate facilities for operating at a reasonable distance from the noise of battle, and arrangements for adequate post-operative treatment, which includes rest and good nursing. Casualties fit for evacuation are transferred from shore to ship by D.U.K.W.s, which can proceed from the dressing station across sands and sea to the L.S.T.s waiting off-shore. These D.U.K.W.s can be driven straight into the L.S.T.s. The interval between "life-and-limb" surgery and "definitive" surgery is one in which gas gangrene and sepsis have to be prevented or controlled. One step that has been taken is to provide supplies of penicillin on the beaches, on L.S.T.s, on hospital carriers, and on ambulance trains; detailed instructions have been issued regarding dosage and records to be kept. Suitable cases will be given 100,000 units of penicillin intramuscularly before leaving the advanced surgical centre or casualty clearing station. Maintenance doses of 50,000 units at intervals of about five hours will be given until the patient reaches the surgeon in the transit or port hospitals. In addition to penicillin, whole blood is available on L.S.T.s and hospital carriers. On arrival at United Kingdom ports patients are rapidly sorted by experienced surgeons into two categories. Those requiring immediate treatment will be sent to near-by hospitals already set apart and ready; the remainder will be dispatched by civil or military ambulance train (staffed by doctors, nurses, and orderlies) to E.M.S. transit hospitals located within a couple of hours' train journey. At these transit hospitals civilian surgical teams, reinforced where necessary by Army surgical teams, carry out all urgent surgical measures. From these hospitals patients, when fit to move, will be dispatched to base hospitals (E.M.S.) all over the United Kingdom, and in due course will be sent to military convalescent depots for rehabilitation and hardening to fit them once more for active service.

At this turning-point in our history the men of the United Nations are grappling at close quarters with the enemy, and it is natural that our attention should be focused on measures for treating the wounded. Of no less importance—indeed of greater importance—are all those measures comprehended under the term "preventive medicine." Many a general has been defeated by bad sanitation and by ignorance of the cause of disease. The fortunes of war turn ever more closely on the good hunting of the scientist in the laboratory—and, from the medical standpoint, especially the laboratory of the bacteriologist.

THE ENGLISH DISEASE

At the beginning of the seventeenth century doctors took note of a new disease, common in the South-West and popularly known as the rickets. Milk was at this time, according to Drummond,[1] giving place to bread in the national diet. Whether because of the frequency of rickets in England or because the earlier descriptions by Whistler, Boot, and Glisson were of English cases, Europe called it the English disease. In 1650 Glisson and his colleagues of the College of Physicians reported on the clinical aspects of the disease in a historic treatise.[2] The latest addition to the long enlightening literature takes the form of a report on the incidence of rickets in wartime, presented by the British Paediatric Association at the invitation and with the co-operation of the Ministry of Health.[3] The lack of uniformity in age studied and in selection of cases in the pre-war surveys in London, Manchester, Newcastle-upon-Tyne, and Glasgow, summarized in this report, makes comparison difficult, but the question how far war conditions may have checked the recognized decline of rickets in pre-war years receives a negative answer. It may be pertinent to note that for "wartime" could be written (though a neat portmanteau phrase for it is lacking) the time when once again milk is taking its place in the diet, particularly of pregnant women.

The report reads like an epitaph on clinical rickets, at least in Southern England. Rickets is defined not as a clinical syndrome but as a metabolic or nutritional dis-

[1] Drummond, J. C., and Wilbraham, A., 1939, *The Englishman's Food.*
[2] Glisson, F., 1650, *De Rhachitide.*
[3] Ministry of Health Reports on Public Health and Medical Subjects No. 92. H.M. Stationery Office. (9d.)

order "characterized by imperfect calcification of growing bone." The criterion for diagnosis was detection of this imperfectly calcified bone in an *x*-ray picture of the left wrist. Of the 5,283 children investigated in the early months of 1943 in twenty-two centres in the British Isles and one in Dublin, 106 showed signs of rickets in the opinion of two out of the three examining radiologists. In Great Britain, of 3,328 children aged 3 to 12 months 17 showed active and 56 healed or healing rickets, and out of 1,490 aged 12 to 18 months there were 3 active and 7 healed, rates of 2½% before 6 months and 4% during the first year. In Newcastle-upon-Tyne, Manchester, Leeds, and Sheffield the rate among 504 examined before 1 year old was 10 to 12%. Clinical evidence of active rickets was present in 604 out of 4,818 children in Great Britain at ages 3 to 18 months, the proportions varying from none in St. Albans and Watford to 61% in Sheffield. The most important clinical sign was taken to be craniotabes at 3 to 4 months, enlargement of costo-chondral junctions at 6 months, and of the epiphysis at the wrist at the end of the first year. Unfortunately for the value of these signs only 32 of the 604 so diagnosed showed radiological signs, while of the 4,214 clinically normal, 48 showed radiological signs. Correlation between clinical and radiological cases was poor. Biochemical tests, performed at some centres, are not recorded, and it would be interesting to know how far babies with a raised blood phosphatase would form another group and how far clinical, radiological, and biochemical rickets occurs in the same case.

Owing to the small number of cases of rickets diagnosed, information about the type of feeding and the amounts and kinds of vitamin D additions to the diet proved too much even for the virtuosity of Dr. Percy Stocks, so ably displayed in the general analysis of the collected observations. Nevertheless the report concludes that rickets, while more common in the artificially fed, may be expected also in the breast-fed baby, and that there is scope for better prophylactic measures and more extensive use of the Government's cod-liver oil. The British Paediatric Association and those who helped in this careful survey deserve congratulation. The report has drawn attention to the difficulties in the diagnosis of rickets when cases of florid type are scarce, and it will provide a good basis for comparison with any future surveys.

Two lines of thought are started by the reading of this report. First, what is the precise importance to the health of the community of "imperfect calcification of growing bone"? A recent paper[4] from Prof. Park's Clinic at the Harriet Lane Home gives the results of histological study of the middle ribs in 230 consecutive necropsies in children between the ages of 2 and 14 years dying from all causes. Of these 23% showed slight, 18.7% moderate, and 4.8% advanced, rickets—a total of 46.5%. The percentage was greater among those dying of illness lasting less than 14 days. In 5 cases at most were changes noted in a radiograph. The authors doubt if slight degrees of (histological) rickets interfere with health or development. Accepting the definition of rickets as a disease characterized by imperfect calcification of growing bone, it seems certain that rickets was present in many more cases in the British Paediatric Association's survey than were apparent in *x*-ray pictures of the left wrist. How far does histological or radiological rickets matter? Here is a problem to stretch the pia mater of an apostle of positive health. The second thought is of thanksgiving for the good fortune of the British Isles, where the importance of clinical, radiological, and histological rickets can form the subject of argument at a time when so large an area of the populated world is faced with the reality of gross and unmistakable nutritional disease. The English disease bids fair to end as the European disease.

[4] Follis, R. H., Jackson, D., Eliot, M. M., and Park, E. A., *Amer. J. Dis Child.*, 1943, **66**, 1.

RESPONSIBILITY FOR CLEAN MILK PRODUCTION

When the Minister of Agriculture, with the acquiescence of the Minister of Health, seeks the transfer to himself of statutory powers relating to the prevention of disease of milk-borne origin it is well to bear in mind the functions and fundamental purposes of the respective Ministries. In all matters affecting the public health, and for all measures in State medicine authoritatively taken for the prevention of disease among human beings, the Minister of Health has been and must remain responsible. Where primarily the administration of an Act is placed upon local authorities the Minister concerned must see that they exercise their powers and duties or, in their default, that they are superseded by a major local authority, or, in the last issue, by the central authority ultimately responsible. Failure is an affair not merely of local but of central government also. The Minister of Agriculture recognizes this, but his answer in the debate on the second reading of the Milk and Dairies Bill on May 19 was a *non-sequitur*. He said that the whole problem had radically changed since 1926, when these powers were originally entrusted to the local authorities. The intention stated by Mr. Hudson that he and the Minister of Health will be jointly responsible for making regulations for the control of milk supplies does not necessarily imply a joint responsibility for enforcing them.

The battle for clean and safe milk—in which the Board of Agriculture was not conspicuous for its zeal—began and bore fruit long before 1926. It is true that progressive dairymen, led by the Institute of Research in Dairying, Reading, and by local agricultural committees, have done much to rationalize and simplify methods and requirements since that time. The problem has changed, but has changed largely because of the comparative success which has attended the efforts of the most zealous local authorities and their officers. Not so long ago (but long before the date given by Mr. Hudson), when the infant death rate was three and four times what it is to-day, medical practitioners and medical officers of health were agreed that for a large part of this mortality infected milk was to blame. In the industry with which the Minister of Agriculture is identified, and to which public attention was then directed, investigation showed intolerable conditions in respect of premises and practice. To a considerable degree, due largely to the activities of local authorities whom it is now sought to supersede, these evils have been mitigated. Milk, it was

found, was grossly fouled on the farm, from uncleanly cows, in insanitary cow-sheds, in unsuitable and ill-equipped dairies, by the ignorant practices of cowmen and dairy hands, in transport to the wholesaler, from him to the retailer, and again by the retailer and in the home of the consumer. Sanitary inspectors and health visitors were trained to deal with these evils and to instruct in the hygienic handling of milk whether at the farm or during transit, and the local authorities were armed with statutory powers to enforce compliance. The veterinary inspection service, of which Mr. Hudson is so rightly proud, had its local origin in these efforts, and initially was brought into being by the major health authorities at the suggestion of medical officers of health. The reduction of infection of infants by cows' milk was partly responsible for the decline in infant mortality which, during the last half-century, rewarded the efforts of local authorities and their officers. Tuberculosis, typhoid fever, scarlet fever, diphtheria, and other diseases, in addition to the diarrhoea of infants, may in a variety of ways be milk-borne, and have each called for preventive measures and been dealt with under statutory powers for inspection of the milk supply which have served their purpose but are now to be split and redistributed. The health officers, to whom they owe their origin, are to be deprived of these slowly evolved powers over milk production, which, it appears, are to pass into the hands of veterinary officers, who are not primarily concerned with human diseases or with the preventive steps appropriate for the control of most of them. The M.O.H. will still be responsible in theory for the prevention of these diseases, but in practice he will enter the field only after the damage has been done. This disjunction of responsibility is comparable to the larger disorganization which the proposals for a comprehensive medical service will involve in other spheres of medicine and public health.

Under an illusion that the Ministry of Agriculture is equipped with the means and the staff for doing what some local authorities, for reasons well understood, have failed to do, most of the M.P.s who spoke in the debate seemed to be willing to hand over to that Ministry responsibilities which it cannot discharge. It is no reflection upon the veterinary inspectorate of the Ministry of Agriculture to say that neither by their numbers nor by their training can they replace in this field of preventive medicine the M.O.H. and his staff, trained in the technicalities for control of disease in man and constantly present in the localities where the dairy farms are situated. No one more than the Public Health Service can welcome the veterinary inspector's efforts to improve, both in health and in quality, the "stock" which are his care, but there is confusion of thought in the failure to distinguish this province of veterinary medicine from that of preventive medicine concerned to control the conditions, at the source as well as at the periphery, under which milk becomes a dangerous vector of disease to human beings.

The main reason given for the transfer of the responsibility for inspecting premises, equipment, and methods of milk production is the neglect or incompetence of defaulting authorities and their officers. Because of the failure of some authorities and of local benches of magistrates to do their duty all the machinery of supervision by the greater number of local sanitary authorities is to be scrapped, ostensibly to place it in more efficient hands. The weakness of this argument becomes plain when the inadequacy of the staff possessed by the Ministry of Agriculture to deal with the vast volume of work hitherto performed by local authorities is considered. How do the numbers of veterinary officers at the Ministry compare with the army of sanitary officers throughout the country engaged in an endeavour to secure proper conditions in the production as well as the distribution of clean, wholesome, and safe milk? Are trained veterinary practitioners, diluted by a lay inspectorate, to be engaged in sufficient numbers to replace the sanitary inspectors whom it is proposed to withdraw from this work but who cannot be cut down in numbers because of their other local duties? The Ministry of Agriculture should concentrate on the improvement of stock, the raising of healthy cattle, and the care for dairy produce and milk marketing; the Minister of Health should continue to see to it that whoever undertake inspection they shall conform to his requirements for the protection of the public health. The powers hitherto vested in local health authorities are a legacy from generations of experienced hygienists. If it is established that smaller sanitary authorities are hindered in their work by local influences, the remedy is to enlarge the administrative area for this and other functions of local government.

THE MINISTER REPLIES

The news that the Annual Representative Meeting to be held in July has been postponed at the request of the Government was received by most doctors with mixed feelings. But we rested securely on the understanding with the Ministry of Health that a Bill would not be brought before the House of Commons until full opportunity had been given to the profession to formulate its policy, and to make representations on a proposed legislation. The Minister of Health, however, gave replies to questions in Parliament last week which suggest that this understanding is not bilateral. When on June 8 Dr. Howitt reiterated a question put two days before by Sir Ernest Graham-Little in the following words:

"In view of the postponement of the Annual Representative Meeting of the British Medical Association at the request of the Government, will he give an assurance that legislation on a National Health Service will not be introduced by him until after negotiations have taken place between him and the medical profession, bearing in mind that under its constitution only the Representative Body of the Association can determine the policy of the B.M.A.?"—

Mr. Willink's reply was as follows:

"My hon. friend will appreciate that I cannot give an assurance quite so absolute as he suggests. It is still my wish to have full discussions with the profession before introducing legislation, and I see no reason why I should be prevented from doing so by the delay which will be caused by the profession's inevitable postponement of its conference."

The last fifteen words of the Minister's reply convey an impression which, in the interests of accuracy, it is desirable to correct. The B.M.A. was requested by the Minister of Health to postpone the meeting of the A.R.M.[1] So let it be clear that in this case the profession has had to act on Government instructions. The B.M.A. is compelled by circumstances to postpone its deliberations and for the

[1] See letter from Ministry of Health, *British Medical Journal*, May 27, 1944, p. 727.

time being to remain in ignorance of what the policy of its members in relation to the White Paper proposals is, for, as the Minister well understands, the Representative Body alone has the power to make policy. As the Minister of Health has been forced to impose this delay upon us it was taken for granted that he would impose a delay upon himself and his Department in accordance with the understanding that has prevailed between the Ministry and the Association in this matter. But his answers in Parliament last week raise a doubt whether this understanding still exists.

SPANISH MEDICINE

The Prime Minister's recent references to Spain provide an occasion for reflection on the history and present condition of medicine in that country. Almost exactly 100 years ago an English traveller of exceptional discernment described[1] among other characteristics of the contemporary Spanish scene the low standard of medical education and practice, the menial position of the medical profession, and the hostility of Church and aristocracy to progress. He asked: "Can it still be wondered . . . that their textbooks and authorities should too often be still Galen, Celsus, Hippocrates, and Boerhaave?" adding that "the names of Hunter, Harvey, and Astley Cooper are scarcely more known among their M.D.s than the last discoveries of Herschel." That Spanish medicine should have lagged so far behind is remarkable when one considers the important part played until the thirteenth century by Spain, and especially by the School of Translation at Toledo, in the rediscovery of Graeco-Roman and the transmission of Arabic medicine. In succeeding centuries the darkness is hardly relieved except by Miguel Servet (Servetus), who, bold enough to question Galen but not bold enough to face the ecclesiastical music, fled from Catholic Spain to Calvinistic Geneva, only to perish a victim of fanaticism equally ruthless in its opposition to truth and light.

There are evidently some in Spain who feel that their country does not receive a just recognition in foreign medical histories. Thus, the translator of the Spanish edition[2] of the standard English-language work found it necessary to add a 103-page appendix on the history of Spanish medicine. Similarly, a Spanish edition[3] of a popular English history of surgery is amplified by a 54-page appendix on "Surgery in Spain." It must be confessed that a reading of these appendices does little to encourage the view that important Spanish contributions have been overlooked. Yet in the Arts and those other fields of human endeavour by which a nation's progress is measured Spain occupies a sure and important place, and those Spanish medical men who have in recent years found the opportunity to work in clinics and laboratories in Britain and the Americas have shown no lack of scientific talent and aptitude. The reason for this poverty of medical science in a nation whose natural genius cannot be doubted must surely be sought in the anachronistic survival of that spirit of authoritarianism which is the mortal enemy of experiment and discovery.

In a search for significant Spanish contributions to the body of medical science it is necessary to turn to one who died only ten years ago in Madrid—Santiago Ramón y Cajal. Even Cajal[4] lamented that Spain owed almost all it had of science and technology to other countries. In a paper[5] read recently in Spanish at the newly founded Instituto Español in London convincing reasons were given for regarding Cajal as the most illustrious Spaniard of the last century. Without belittling the importance of the arts, of philosophy, and of religion, it is not by these paths but through science that Spain must find her salvation in the twentieth century. The layman may find it difficult to appreciate the greatness of Cajal's work, which was in the domain of fundamental biological science and did not result in those practical applications which attract popular interest and acclaim, but apart from the direct value of his work, it would be difficult to overestimate the indirect influence of Cajal on Spanish thought. He opened the eyes of many Spaniards, who, then and since, first saw beyond authoritarian barriers the more spacious world of scientific inquiry, criticism, and objectivity, and to them his memory remains an inspiration which forms a link between those in exile and those at home. For the first time medical scientists of other countries found it necessary to learn Spanish in order to follow new discoveries in the original. The many honours which were showered upon Cajal from abroad at a time when the national prestige of Spain was at its lowest ebb had an important effect on the public and official attitude to science. It is interesting to speculate upon what would have been Cajal's view of the position of Spain in the present world-wide conflict. Perhaps the answer may be found in his own words[4]: "In the democratic State all liberties are sacred except one—the negation of liberty. And all rights are legitimate except this—the mental deformation of future citizens. We respect as sacrosanct the precious germs of reason, for they belong not to us but to God."

There is evidence that the values for which Cajal stood have not been entirely extinguished in the Spain of to-day, and recent British visitors have spoken with particular enthusiasm of the research[6] on nutritional deficiencies which is being undertaken in the institute at Madrid directed by Prof. C. Jiménez Díaz. Spanish has not hitherto been regarded as a medically or scientifically important language, but in Argentina, Mexico, Chile, and elsewhere in the Spanish-speaking world active centres of medical investigation exist or are developing, and it seems not unreasonable to suppose that Spanish will in the future achieve an important position not only as the language of saints and soldiers, of poets and philosophers, but also as a medium for the communication of discoveries in medicine and other scientific fields.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* have been printed. They will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who wishes to have one or both of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Accountant, B.M.A. House, Tavistock Square, London, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

Mr. Desmond MacCarthy, LL.D., will deliver the Lloyd-Roberts Lecture at the Royal College of Physicians of London, Pall Mall East, on Tuesday, July 11, at 4.30 p.m. Subject: "Psychology in Literature."

[1] Ford, R., 1846, *Gatherings from Spain*. [Reprinted in Everyman's Library, 1927, Dent, London.]
[2] Garrison, F. H., 1922, *Historia de la Medicina*, Calpe, Madrid.
[3] Graham, H., 1942, *Historia de la Cirugía*. Iberia-Joaquín Gil, Barcelona.
[4] Ramón y Cajal, S., 1932, *Charlas de Café*, 4th edition. [Reprinted in Colección Austral, 1941, Espasa-Calpe Argentina, Buenos Aires.]
[5] Vázquez-López, D. E., 1944, *Cajal y la ciencia Española*. [Paper read at the *Instituto Español*, 58, Prince's Gate, London, S.W.7, but not published.]
[6] Most of this work has been published in *Revista Clínica Española*.

MEDICINE IN FREE CHINA

BY

WILDER PENFIELD, C.M.G., F.R.S., Hon.F.R.C.S.
Professor of Neurology and Neurosurgery, McGill University, Montreal

The people of China were turning away from their own ancient forms of medical practice at about the time this war broke out, and the Chinese Government had embarked upon a policy of rapid increase in the number of university medical schools. Instead of expansion, however, the loss of the seaboard cities to Japan has resulted in closure of 28 out of China's 29 medical schools. Simultaneously, the blockade shut off from that country the supplies of drugs, equipment, and medical literature upon which their physicians had previously depended. At such a time as that it became necessary to create in China a medical service for a large army.

This dilemma has been faced by the Chinese undaunted and with characteristic resource. The following notes on medical education, the Army Medical Service, and medical problems of wartime China were made during an all too brief journey into that country during the summer of 1943.

Medical Education

Situated in the rice fields near a village outside Chungking is a cluster of temporary buildings, surfaced with mud and painted black. This is the Central Hospital of Nanking and the Shanghai Medical School. Set out in the place of honour between hospital and medical school is the library and reading-room, in which is housed a precious hoard of books and out-dated medical journals that was transported somehow across the whole of China. In the medical school there are 250 students. They live in rooms which accommodate six to eight, furnished with "double-decked" beds, a narrow table, and a single candle for light.

On entering one of the hospital wards I saw on the dirt floor a brazier of burning coals, and on it, boiling in a metal dish, familiar-looking surgical instruments—sterilization which was efficient if unorthodox. This was the obstetrical service of Prof. Gordon King (himself a refugee from Hong Kong).

The patients lay quietly, their beds crowded in neat rows. A young Chinese woman, graduate of Johns Hopkins, was speaking in a low voice, and around her clustered a dozen students. I picked up a case history. It was written in English on flimsy brown paper, detailed, and well organized; temperature chart, progress notes, nurses' notes, all as they should be. Within the ward was the quiet bedside discussion, the atmosphere which should be found in a good teaching hospital anywhere—Baltimore, London, Moscow.

Outside, ducks were quacking and splashing in the rice fields, and along the raised path two coolies approached at a trot, carrying between them a patient in a chair. Along the dirt highroad beyond came the Chungking bus, and, as it stopped, the billowing black smoke of its exhaust betrayed the fact that it burned alcohol—a fuel easily produced in this country of farmers. Passengers alighted and streamed along the path to the hospital.

There are other universities and medical schools that have re-established themselves with similar equanimity, with the same air of undisturbed scholarship, in the face of the greatest hardships and personal privations. Many of the schools have, of course, disappeared. Only one in the whole of China continues in its own buildings—the West China Union University Medical School in Chengtu.

Chengtu, in the heart of the Szechwan province, which was formerly the most inaccessible region of China, has become the principal haven of university refuge. Here West China Union University has welcomed on its capacious "campus" National Central (Nanking), Cheeloo (Tsinan), and Peking Union Medical Schools. (After four years the medical school at Nanking moved into separate buildings in Chengtu.) Laboratories, libraries, and class-rooms are shared, teaching and research are carried on, and degrees are granted by each institution separately.

The standard of these medical schools is high. The course in medicine at West China and at Cheeloo is seven years (Peking Union, eight years). The course is divided into two years of premedical work, four of medicine, and one spent in a rotating internship with field work in public health, followed by preparation of a thesis. Before entering the above medical courses students must have spent six years in primary school and six years in secondary or middle school.

The school of dentistry at West China Union is partly amalgamated with medicine, and the courses are identical in the first four years. The dental course there is also of seven years' duration. They graduate only about 12 men annually, and this was the sole dental school in China until the Nanking National Central University began theirs recently.

It would be impossible for me to follow the fate of all of China's 29 medical schools. There are two refugee institutions in Chungking, working under indifferent circumstances. One of them, Kingsu, is a German-speaking school. North-Western is at Hangchong, in Shensi province, and Hsiangya (Yale in China) is at Kweiwang. There are two medical school "war babies" which have been formed in war years—one at Kweilin and the other at Kweiwang. (For much of this information I must thank Dr. Leslie Kilborn, formerly of Toronto, Dean of Medicine in West China Union University.)

In order to make up for the shortage of medical men to some extent the Ministry of War has created Army Medical Colleges. The largest of these, now at Anshun, was founded 40 years ago. The course lasts only four years instead of the six or seven demanded by civilian Chinese medical schools. About 1,000 surgeons and 400 pharmacists have been graduated in these military colleges.

The effort to keep alight the flame of medical education is gallant enough, but at the present time even Chengtu, with its three medical schools, is qualifying only 50 to 60 graduates yearly. In the whole of Free China Dr. Kilborn estimated that, exclusive of the military colleges, not more than 100 to 150 doctors can be qualified by the universities each year at the present rate. The population of China is said to be between 450 and 600 millions, and the Chinese Government has estimated that the country needs at least 225,000 physicians.

The English-speaking missionary has done splendid work, and is still doing what he can with worn-out instruments and failing drugs. Without considering religion in these pages, his major contribution has been to teach some of the future teachers of Chinese medicine. He has, of course, also introduced the English language, and has presented Western culture in a favourable light, perhaps considerably more favourable than it deserves.

In Chengtu and Chungking the teaching by medical missionaries is on a high academic level. The sabbatical system of returning each to his own country every seven years has given opportunity for postgraduate training, and this, together with the stimulating effect of the obvious need, has made excellent teachers of men who may not have been chosen primarily on the basis of academic distinction.

The Chinese Army Medical Corps

The number of doctors required, according to Western standards, for the Medical Corps of the Chinese Army would be double the total number of medical men that have been trained so far in that country during its entire history. It is obviously impossible, therefore, to provide an Army, estimated at nine million men, with a medical service that is entirely satisfactory; just as impossible as it is to provide at this time the hundreds of millions of Chinese civilians with adequate medical care.

Nevertheless, the Surgeon-General* has managed to develop an Army Medical Service. It consists of a few well-trained surgeons, placed at strategic points, and many partly trained officers. Most of his well-trained men are employed to teach first-aid assistants and to supplement the training of others. Thus medical officers have been marshalled in one way and another, and however inadequate the supply might seem, those

* Lieut.-Gen. Lu Chih Chieh (anglicized to Dick Lu) is well trained, well informed, and resourceful. His headquarters are about ten miles outside Chungking. Here he has direct communication by telephone with each of the nine regular war areas of the Chinese Army. General Dick Lu is a graduate of Peking Union Medical College. After graduation he spent eight years working in the field of physiology. In 1935 he made a study of military medical establishments in America and Europe, spending six months of his time in England. He was recalled at the outbreak of war, and was made Surgeon-General in 1939.

in charge† of the British and American Medical Services during the Burma Campaign report that the performance of the medical corps in the Chinese Fifth Army at that time was remarkably effective under the most difficult conditions.

In another field the Army Medical Service has taken energetic steps to make up, so far as is possible, for the almost complete cessation of supplies from abroad:

A factory for instruments and hospital equipment has been built near Chungking. Here are turned out well-finished surgical instruments, stethoscopes, sterilizers, etc. Near by is an artificial-limb factory running to capacity. The prostheses, made expertly of leather and wood, seemed quite satisfactory. Amputations have been numerous, and 4,500 of the cripples have so far been fitted with artificial limbs, of which 80% have been made in the new limb factory. A still larger number of amputés continue to wait for their limbs.

Also in this vicinity is a herbarium of 200 acres, and there is a similar herbarium with larger acreage in another district. Thus the Army Medical Service is producing digitalis folia—said to be more than sufficient to supply the Army—pyrethrum (an insect repellent), cannabis indica, stramonium, cascara, rhubarb, and a few other drugs. They are producing Saxifrageaceae from which may be extracted a glucoside reputed to have an antipyretic and antimalarial action. Many drugs, of course, such as the sulphonamides, cannot yet be manufactured.

Problems of Military Medicine

At the present time, instead of war casualties being the primary consideration of the Army Medical Service, they take third place, after malnutrition and infectious disease.

Malnutrition comes first. This is not due so much to deficiency in calories, for the supply of partly polished rice is often adequate. It is due to deficiency in the protein, fat, and vitamins available to the Army. Vegetables are raised in some parts of China; meat is available in others. The difficulty of distribution arises from lack of transport facilities. Nevertheless, when this problem was discussed with Generalissimo Chiang Kai-shek he stated that the soldiers generally receive meat twice a week—a claim which can hardly be made for the population as a whole.

Next in importance after nutrition is the problem of infectious disease, and here the acute shortage of specific drugs is noteworthy. Malaria, of course, is prevalent in some areas, and they seem to have little quinine and less atebrin. Dysentery is frequent, and the supply of sulphaguanidine has been insufficient for adequate trial, although sulphanilamide is said to have been helpful. Typhus has had a relatively low incidence except at times in North China. Typhoid and relapsing fever have often presented serious problems, as have scabies, leg ulcers, and trachoma. During a period of 4½ years a total of 967,660 cases of sickness were analysed by the Surgeon-General from various units of the Army Medical Service Administration; 29% of these patients were suffering from infectious diseases, 13.6% from respiratory diseases, 20% from gastro-intestinal disease, and 17.6% from diseases of the skin.

Battle casualties were most numerous early in the war, and will be again, no doubt, when increased communication brings in supplies and enables the Chinese Army to take up offensive warfare. In 1937 the ratio of wounded to sick was 2 to 1 in the Army; in 1942 it was 1 to 4. Of nearly a million casualties subjected to analysis, 6.1% were suffering from injury to the head, 6.5% to chest, 6.6% to abdomen, 78% to extremities, and 2.5% to other areas.

Evacuation of wounded has always been difficult. It is carried out chiefly by man-power. Carriers can do 30 kilometres in a day, but the casualty-collecting points may be 20 to 50 kilometres behind the scene of action, and evacuation hospitals 100 kilometres. Consequently, many wounded perish without surgical treatment or are cared for and nursed back to health in farmhouses of the district. Blood-donor clinics do not exist, and blood derivatives for the treatment of shock are not available.

Auxiliary Medical Units

Very important aid is given to the Army Medical Service by Auxiliary Army Medical Units of various types. The surgeons in these units are better paid than the Regular Army medical officers. They are moved about and placed at strategic points where the fighting is most active. Such units have been provided from the following sources: (1) the Chinese Red Cross, which has supplied by far the largest number; (2) the New Life Movement; (3) National Health Administration anti-epidemic teams; (4) E.M.S.T.S. units (emergency medical training schools, which have been set up at eight different points near the war areas, train medical aides and provide special courses for medical officers); (5) Friends Ambulance units; (6) British Red Cross unit. In addition to this, the mission hospitals, if near the battle area, have helped greatly and have played a most important part in the care of casualties from Japanese bombing raids.

The General Situation

Aside from military establishments, there are in Free China to-day about 15,000 hospital beds available to the public. These beds are made up roughly as follows (figures from Dr. A. Stewart Allen, formerly of Montreal, now of Chungking):

(1) National Health Administration (Chinese Government)	5,000
(2) Private Chinese hospitals (chiefly attached to medical schools or colleges supported to some extent by the Chinese Red Cross)	2,500
(3) Mission hospitals	7,500
Total	15,000

The mission hospitals receive their major support from the Chinese patients, who are admitted in categories of charity, semi-private, and private. The foreign staff, including doctors and nurses, receives financial support from abroad. But, in general, foreigners are being steadily replaced by newly trained Chinese.

The National Health Administration (N.H.A.)‡ concerns itself with the problems of public health, the control of epidemic disease, and the distribution of essential drugs. It has established county health centres, which serve a very useful purpose. However, this department is not charged with the care and rehabilitation of wounded soldiers, as in the case of its counterpart in Allied countries.

The Chinese have always taken pride in a high tradition of scholarship. It is therefore not surprising to discover that a considerable amount of medical research is being conducted under the adverse circumstances of wartime. Dr. Joseph Needham, British Scientific Mission, has surveyed the present situation in China in regard to scientific research. (*Nature*, 1943, **152**, 9, 26, 64, 343, 372.)

Conclusion

Drugs, instruments, and, most of all, medical literature are badly needed now by physicians, medical teachers, and Army surgeons in China. But what the country seems to need more than anything else is medical men—not foreign physicians who cannot speak the language, but Chinese, trained in medicine at home or abroad—200,000 of them!

The problems faced so resolutely now by the Surgeon-General of the Chinese Army are similar to the problems faced by the National Health Administration to-day and to be met in the days to come. These problems will be of paramount importance in the period of post-war rehabilitation. Education is the field which presents the greatest opportunity for assistance. In this field, medicine should be given high priority to help China win her battle and establish herself securely as a great and independent nation.

† Major-Gen. Thompson, D.D.M.S., Bengal, and Col. Williams, Chief Surgeon to the American Forces in the China–Burma–India Theatre.

‡ For a description of the work of this department and the general health problems of China see *China's Health Problems*, by Szeming Sze, Chinese Medical Association, Washington, D.C. (reviewed in *British Medical Journal*, Nov. 6, 1943).

R. E. Burger and C. B. Morton (*Surgery*, 1944, **15**, 313) review the literature and record five cases of infection by *Torula*. In the first, one of torulosis of the central nervous system, the diagnosis was made at necropsy. In the second, a case of generalized torulosis, a diagnosis of Hodgkin's disease was made from biopsy material. In the third, a case of localized torulosis of the thigh, an apparent cure was effected by radical surgery and potassium iodide internally. In the fourth, a case of torulosis of the C.N.S., the diagnosis was made by smear and culture of spinal fluid. In the fifth, death was due to cerebrospinal torulosis.

BIRTHDAY MEDICAL HONOURS

The names of the following members of the medical profession were included in a Birthday Honours List published in *Supplements* to the *London Gazette* on June 8:

Order of Merit

Sir HENRY HALLETT DALE, *G.B.E.*, M.D., D.Sc., LL.D., F.R.C.P., President of the Royal Society.

K.B.E. (Military Division)

WILLIAM TYRRELL, *C.B.E., D.S.O., M.C.*, M.B., B.Ch., Air Vice-Marshal R.A.F.

Knighthood

ERNEST ROCK CARLING, M.B., F.R.C.S. Consultant Adviser in Surgery and Adviser on Casualty Services to the Ministries of Health and Home Security.

WILLIAM ALLEN DALEY, M.D., F.R.C.P., Medical Officer of Health and School Medical Officer, London County Council.

ALEXANDER FLEMING, M.B., F.R.S., F.R.C.P., F.R.C.S., Professor of Bacteriology, University of London. Discoverer of penicillin.

HOWARD WALTER FLOREY, M.B., Ph.D., F.R.S., Professor of Pathology, University of Oxford. For services in the development of penicillin.

ALFRED CHAD TURNER WOODWARD, M.B., Ch.B., F.R.C.S., Chairman of the Worcestershire County Council.

C.B. (Military Division)

GILBERT ALAN BLAKE, M.B., K.H.S. Major-Gen., late R.A.M.C.

STANFORD CADE, F.R.C.S., M.R.C.P. Acting Air Cmdre. R.A.F.

PHILIP HENRY MITCHINER, *C.B.E., T.D.*, M.D., M.S., F.R.C.S., K.H.S. Col. (Temp. Major-Gen.), late R.A.M.C., T.A.

GORDON WILSON, *C.B.E., M.C.*, M.B., K.H.S. Major-Gen. (local Lieut.-Gen.), late R.A.M.C.

C.I.E.

HERBERT EDWARD MURRAY, M.D., M.Ch. Lieut.-Col. I.M.S. Professor of Midwifery, Medical College, and Superintendent, Medical College Hospitals, Calcutta.

C.B.E. (Military Division)

EDWARD BRUCE ALLNUTT, *M.C.*, M.R.C.S. Col., late R.A.M.C.

GRANT MASSIE, M.S., F.R.C.S. Lieut.-Col. (Temp. Col., local Brig.) R.A.M.C.

CHARLES JAMES SIDNEY O'MALLEY, M.B., B.S. Acting Group Capt. R.A.F.

RICHARD ALUN ROWLANDS, *O.B.E.*, M.D. Temp. Surg. Rear-Admiral.

JOHN MURRAY WEDDELL, F.R.C.S. Col. (local Brig.), late R.A.M.C.

C.B.E. (Civil Division)

RICHARD CHARLES ALEXANDER, M.B., F.R.C.S.Ed. Surgical Director, Emergency Medical Service, Eastern Region of Scotland. Professor of Surgery, University of St. Andrews.

JOHN BLACK GRANT, M.D., D.P.H. Director, All-India Institute of Hygiene and Public Health, Calcutta.

ARCHIBALD HECTOR MCINDOE, M.Sc., M.S., F.R.C.S. Civilian Consultant to the R.A.F. in Plastic Surgery.

JOHN PHIMISTER MITCHELL, *O.B.E.*, M.D. Colonial Medical Service, Medical Superintendent and Principal, Medical School, Mulago, Uganda.

WALTER PERCIVAL YETTS, *O.B.E.*, D.Lit., M.R.C.S. Professor of Chinese Art and Archaeology, London University.

O.B.E. (Military Division)

MONAWAR KHAN AFRIDI, M.D. Major (Temp. Lieut.-Col.) I.M.S.

VINCENT HENRY LUDOVICI ANTHONISZ. Lieut.-Col. Ceylon Medical Corps.

HAROLD JOHN BENSTED, *M.C.*, M.R.C.S. Lieut.-Col. R.A.M.C.

WILLIAM DALE, M.R.C.S. Major (Temp. Lieut.-Col.) R.A.M.C.

CHRISTOPHER ROBSON DUDGEON, *M.C.* Major (Temp. Lieut.-Col.) R.A.M.C.

JOHN GERRARD HOLMES, M.D. Surg. Cmdr. R.N.

GEORGE MACKIE, M.D. Lieut.-Col. (Acting Col.) Worcestershire Home Guard.

GEORGE HENRY MORLEY, F.R.C.S. Wing Cmdr. R.A.F.

JAMES WALLS ROSS, E.D. Lieut.-Col. R.C.A.M.C.

HENRY ROBERTSON RUTTAN, M.D. Acting Temp. Surg. Cmdr. R.C.N.V.R.

O.B.E. (Civil Division)

ALEXANDER MACANDREW GILLESPIE, M.B., F.R.C.P.Ed. Colonial Medical Service, Senior Specialist, Gold Coast.

Mrs. HELEN MARY TWINING, M.R.C.S., D.P.H. For medical services in Mauritius.

BERTRAM OSBORNE WILKIN, M.B., Ch.B. Colonial Medical Service, Medical Officer (Health), Tanganyika Territory.

M.B.E. (Military Division)

JOHN AMOS, M.B. Capt. (Temp. Major) R.A.M.C.

LINDSAY BARCLAY, Capt. (Temp. Major) S.A.M.C.

SAMUEL JOHN CHESSER, Major R.A.M.C.

ALDINGTON GEORGE CURPHEY, *M.C.* Major Jamaica Medical Corps.

MUHAMMAD ABDUL AZIZ KHAN GOHANAVI, Subadar I.A.M.C., Indian Army.

JAMES GEORGE KEBER LINDSAY, Major R.C.A.M.C.

MICHAEL WHITTAKER CARLTON OLDFIELD, M.B., F.R.C.S. Capt. (Temp. Major) R.A.M.C., T.A.

JACK PENN, Temp. Major S.A.M.C.

ELAINE MARGARET CATHERINE SALMOND, M.D., F.R.C.S. Capt. (Temp. Major) R.A.M.C.

ATMA SINGH, Subadar I.A.M.C.

M.B.E. (Civil Division)

RAI BAHADUR SANTOSH KUMAR MUKERJI, M.B., M.R.C.P. Lecturer in Medicine, King Edward Medical School, Indore, Central India.

ABU ASHRAF MOHAMMAD WAJIH, M.R.C.S. Chief Medical Officer, Emergency Hospitals and Medical Supplies, Bengal.

B.E.M. (Civil Division)

SAVENACA VEIKOSO. Native Medical Practitioner, Fiji.

The honour of knighthood is to be conferred also on PERCIVAL HARTLEY, *C.B.E.*, D.Sc., F.R.S. Director of Biological Standards, National Institute for Medical Research.

We print below the conclusion of the Birthday medical Honours List, published in a *Supplement* to the *London Gazette* on June 10:

O.B.E. (Civil Division)

NIGEL CORBET FLETCHER, M.B., B.Ch. Surgeon-in-Chief, St. John Ambulance Brigade.

ROY DYSON LANGDALE KELHAM, M.R.C.S., L.R.C.P. Principal Medical Officer, Ministry of Pensions.

JOHN ERNEST NICOLE, L.M.S.S.A., D.P.M. Medical Superintendent, Winwick Emergency Hospital, Warrington.

M.B.E. (Civil Division)

WILLIAM BLACKWOOD, *D.S.O.*, M.B., Ch.B. Lieut.-Col. County Commissioner, St. John Ambulance Brigade, Cornwall.

HELEN STANDRING, M.D., D.P.H. Senior Assistant Medical Officer of Health at Hull for Maternity and Child Welfare. For services to Civil Defence.

OSKAR TEICHMAN, *D.S.O., M.C., T.D.*, M.R.C.S., L.R.C.P. Major. Local Army Welfare Officer, Southern Command.

A NATIONAL MATERNITY SERVICE

A report on a National Maternity Service has been prepared on behalf of the Council of the Royal College of Obstetricians and Gynaecologists by the Maternity and Infant Health Services Committee under the chairmanship of the President, Mr. Eardley Holland. It is published this week by the College (58, Queen Anne Street, London, W.1) as a pamphlet, price 1s. 6d. Comment must be deferred to a later issue, but we print now the committee's summary and conclusions.

The practice of obstetrics (midwifery) must be considered on a broad national basis, in the light of the ideas and needs of to-day.

In the *Introductory Section* the present position has been described. It has been pointed out that the maternal mortality rate is still too high despite the fact that there has been a considerable fall in the last few years. We believe that the fall has been due not so much to improvement in the technical side of obstetric practice as to the application of new methods and drugs in the treatment of shock, haemorrhage, and sepsis, and to modern technique in the investigation and prevention of bacterial infection. We believe, also, that the fall has been helped by the increase in institutional midwifery, and the better planning of their maternity services by a number of local authorities. The stillbirth rate started to fall soon after the war began; the fall is slight and the reason for it is not yet clear. The neonatal mortality rate has been falling slowly for some years but is still too high. It is known that in some geographical areas and in some boroughs these obstetric mortality rates are much lower than the average, and in others the rates are much higher. There can be no reasonable doubt that the general application of the lessons learnt from a study of conditions existing where the rates are low would result in a considerable fall in all three and a rise in the general level of maternal and infant health.

In the *Social and Economic Section* we have stated the evidence that poverty—with its accompanying deficient nutrition, bad housing, and overcrowding—contributes greatly to stillbirth and neonatal mortality, and is not without effect on maternal mortality and morbidity. Moreover, it is very necessary to remember that when poverty and its accompaniments exist the technical services cannot function effectively.

Under the *Technical Services Section* we emphasize that in establishing the quality and maintaining the standard of a maternity and infant health service the technical side is dominant. The quality of the technical side depends first of all on the quality of the personnel—obstetric specialists, general practitioners, and midwives—as well as on their number, availability, and distribution.

We propose that the country be divided into maternity areas of a size capable of giving a complete service, and suggest areas yielding about 15,000 births a year as of suitable size for the purpose. We propose further that there should be large health regions based wherever possible on a university medical school, the maternity areas mentioned above becoming constituent areas of the large regions. In a region the service would be based on a key or primary centre, consisting of not fewer than 100 lying-in beds, with at least a third of that number of ante-natal beds, ante-natal and other clinics, a department for infants under a paediatrician, laboratories, teaching and research facilities. A key centre should, whenever possible, be part of a university medical school, and at the head would be an obstetrician of professorial status, whole-time and resident in the centre or nearby. The key centre would set the standard and supply the leadership and inspiration of the whole region. In an area the service would be based on divisional maternity centres, closely associated with the key centre, and at the periphery would be small local centres.

The whole service, in region and areas, should act as a single unit, with all parts integrated—maternity centres, ante-natal and other clinics, obstetricians, paediatricians, general practitioners, midwives, health visitors, home helps, laboratory services. We regard this principle of integration as absolutely essential for efficiency. The service, therefore, should be under a single administrative authority. We believe that the qualification for general practitioners to work in a National Maternity Service should be special and approved postgraduate experience.

One of the difficulties, to begin with, of working the sort of service we suggest is the shortage of well-trained personnel and their uneven distribution throughout the country. In London and most large towns there are enough obstetric specialists; in other areas and towns there are too few, and in still others there are none. Training centres must come before additional personnel can be trained. The university key centres would be the undergraduate schools; some of the divisional centres would be postgraduate schools and schools for midwives. The whole process would have to be gradually evolved until the standard of practice had been considerably raised, and could be undertaken by a select corps of men and women based on high-class maternity centres. We have no doubt that the wider application of knowledge, more and better personnel and institutions, and more efficient planning would greatly lessen the wastage of maternal and infant life and health, and would increase the health, happiness, and vitality of the nation.

Correspondence

Penicillin for Skin Diseases

SIR,—We should like to reply to a few points raised by Majors Taylor and Hughes, whose letter we were interested to read in the *B.M.J.* of May 20 (p. 699).

When we started to use the spray technique in Nov., 1943, we felt that a quicker cure was one of the advantages it might offer, and that, if this was so, it would be facilitated by the use of a relatively strong solution. It was for this reason that we used a strength of 1,000 units per c.cm. We would not claim that this concentration is necessarily the best one for future use.

Development, during treatment, of complete resistance to penicillin was not observed in any of our cases. In Cases 7 and 8 of our sycosis series there was, as stated (*B.M.J.*, April 15, p. 524), a lessening of sensitivity, but even so Case 7 recovered temporarily after further treatment. In Case 4 of the blepharitis series, although no sensitivity test was performed *in vitro* immediately before the use of the ointment was stopped, the condition cleared up rapidly when solution alone was applied to the lids. There is therefore no evidence to suggest that penicillin-resistant organisms were responsible for the deterioration of these cases, and indeed from the clinical point of view it was obvious that they, and Cases 5 and 10 of the sycosis series, were suffering from a chemical irritation of the skin, as distinct from an aggravation of the infective process.

The cases we described provide no direct evidence incriminating the petroleum jelly as the cause of irritation. Cases 5 and 10 of the sycosis series and Case 4 of the blepharitis series were eventually irritated by the penicillin ointment. The bad effect produced by the solution alone in Case 8 of the sycosis series lends colour to the view that it was some impurity in the penicillin rather than the petroleum jelly which caused the irritation. This is supported by a recent experience of one of us in which an infected eczematous area was treated by crude penicillin in a lanette wax and water base (containing no petroleum jelly) and was irritated by this preparation.—We are, etc.,

I. A. ROXBURGH.
RONALD V. CHRISTIE.
A. C. ROXBURGH.

Sensitivity to Liver Extract

SIR,—I read with interest the article by Drs. McSorley and Davidson on sensitivity to liver extract (May 27, p. 714). My experience has in most respects been similar to theirs: nearly all the severe cases I have seen have been secondary—i.e., have occurred in patients who had been having liver injections for months or years. Twice they have occurred when the patient had to change the preparation used owing to her usual brand being in short supply. Once the allergic state is established the patient may be found sensitive to every preparation available or only to one to two.

I think, however, it would be a mistake to assume that most severe cases can be desensitized by the rush method employed by Drs. McSorley and Davidson. I have several times tried a method similar to theirs without success, to find later that the same patient was quite easily desensitized by injections given at daily intervals. The method I now employ is to put severe cases on a hog-stomach preparation while desensitization is being carried out, test the skin response to various dilutions of the liver extract to be used, and start with a dose well below that which causes a positive skin reaction. Unsuccessful attempts to desensitize may lead to a marked degree of hypersensitiveness. In such a case I have seen a well-marked allergic reaction to a dose of 1 minim of 1 in 100 solution of anahaemin. The patient in whom that reaction occurred was, however, successfully desensitized over a period of two months, during which time he had a hog-stomach preparation daily and several blood transfusions.

Nearly all the patients I have seen exhibit severe reactions have been found on inquiry to have had minor symptoms following the previous injection. I think nearly all these severe reactions would be avoided if: (1) all patients at the beginning of liver therapy were instructed to report any unusual symptoms noted to follow an injection—e.g., skin rashes or flushing, feeling of tightness in the chest, headache, vomiting; (2) any doctor changing a patient from one liver preparation to another gave a test dose of 0.05 c.cm. of the substitute preparation and waited 20 minutes before giving the full dose.—I am, etc.,

Truro. C. T. ANDREWS.

Nutritional Oedema in a Vegetarian

SIR,—It does not seem necessary to ascribe the oedema in the case described by Dr. Holmes (May 6, p. 620) to myocardial weakness. The plasma proteins were well below the level at which oedema might be expected. This reduction of plasma proteins during the treatment of anaemia is due to the synthesis of haemoglobin at the expense of other body proteins (see Heath and Taylor, *J. clin Invest.*, 1936, **15**, 411).—I am, etc.,

London Hospital. J. R. MARRACK.

Ketosis in Children

SIR,—To obviate any further misconstruction of my remarks on this subject (*Journal*, April 8, p. 503) I would reply to the points raised by Dr. A. Cruikshank (April 29, p. 602) as follows:

(*a*) I did not say that these children were allergic to fats but that the commonest foods to which children are allergic are the "fatty" ones, the reaction being due to the protein factor rather than the fat—as, for example, an urticaria to cod-liver oil usually occurs in a fish-sensitive child.

(*b*) Dr. Cruikshank has never experienced the occurrence of acidosis (or does he mean "ketosis"?) as soon as bacon fat or milk is added to the diet. The first case mentioned in Dr. Evans's original paper (*Journal*, March 25, p. 432) is one where such attacks were induced by the smallest quantity of milk, even after the fat had been removed.

(*c*) The relief obtained by injecting adrenaline in these cases bears no analogy to its effect in relieving hypoglycaemia due to an overdose of insulin, because when insulin is given it is probable that there is a big supply of glycogen present in the liver which only requires quick release and conversion into blood sugar. But the essence of these ketosis attacks is that they occur when the body's sugar and glycogen supplies have been depleted following emotion, exertion, or excitement, so that there is probably not much glycogen left to be converted into blood sugar by the adrenaline.

(*d*) The administration of alkalis in these cases has no biochemical foundation, as in general there is no "acidosis" in the true sense of the word, no acid change in the H-ion concentration of the blood; so there is nothing to be neutralized.

(*e*) Most of these ketosis attacks last only a few days irrespective of the treatment to a large extent, so Betty's response to the diet and administration of alkalis may have been coincidental and not necessarily the immediate result of the treatment. Let our treatment be prophylactic by finding out to what Betty is sensitive, and, if a food, give her an acid to help her digestion, and thus prevent further ketosis attacks during childhood and possibly migraine in later life, and so make her a different and better child and not "her sweet little self again"—that is, liable to further attacks.—I am, etc.,

London, W.1. GEORGE BRAY.

Symptomless Enlargement of the Oesophagus

SIR,—Dr. J. L. D'Silva's case (June 3, p. 750) may apparently be classed with those of the rare "sigmoid" and "corkscrew" types of megoesophagus discovered at necropsies after fatal road or other accidents or at *x*-ray examinations of the thorax made for various reasons, but not on account of any suspected oesophageal disease. The deformity seems to be developmental—that is to say, potentially, if not to some degree actually, present at birth. But this view does not get us much further as to the causation. Predestination does not imply the absence of causative factors, for veins of the lower extremities are often "predestined" to become varicose, though no one would claim the absence of direct causative factors in such cases. Abnormal conditions of Auerbach's plexus may not be the only cause of megoesophagus. There may even be some unknown general agent at work which in certain individuals acts selectively (i.e., with the effect of a general agent on local predispositions) on the oesophagus—just as in rare cases of acromegaly the excess of growth hormone may act selectively on the scalp, causing it to increase both in thickness and in breadth and length, so that in order to keep fitted to the skull it has to become furrowed (*cutis verticis sulcata* of acromegaly). In these cases of megoesophagus, as has often been observed, the increase in length as well as in breadth causes the oesophagus to become bent or twisted.—I am, etc.,

London, W.1. F. PARKES WEBER.

Aerial Convection from Smallpox Hospitals

SIR,—I am grateful to Prof. Ralph Picken and Lieut.-Col. P. G. Easton for their letters (May 20, p. 699) giving additional evidence in support of the theory of aerial convection of smallpox infection. Prof. Picken refers to Sir Alexander Macgregor's experience in the Glasgow epidemic of 1920–1. I may say that in the more recent outbreak of 1942 aerial convection from the Glasgow smallpox hospital provided—to those who accept the theory—a simple explanation of the connexion between the "ship's group" of cases and the "city group," otherwise almost inexplicable. Aerial convection also provided a simple explanation of the remarkable outburst in Leicester in 1903, when in the space of eleven days (after a lull of a fortnight without cases) 65 cases occurred in 61 houses in 58 streets scattered over two-thirds of the city (the district which escaped was the furthest from the smallpox hospital), and in 62 of the 65 cases not the slightest clue to the source of infection (apart from aerial convection) could be discovered. The 37 adults who went to work were employed in 32 different work-places, and 14 children attended 11 different schools. Obviously the "missed cases" theory is quite inadequate to explain such an outburst. As I said in my report on the outbreak, the infection appeared to have "dropped from the clouds." Since I have learnt from my recent study of the subject how very strong the evidence in support of the theory is, I venture to say that is just where it did come from.

Now that we are learning the limitations of the protection conferred by infant vaccination, it is all the more necessary that every aspect of the problem of how smallpox is spread should be carefully studied. I hope, therefore, that those who may have thought that the theory of aerial convection had been exploded will reconsider the question.—I am, etc.,

Leicester. C. KILLICK MILLARD.

Strangulated Femoral Hernia

SIR,—The memorandum by Mr. D. K. Mulvany (June 3, p. 751) affords an opportunity to refer briefly to two points in the operation. In the early case, if, after opening the sac, difficulty in reduction is encountered, the abdomen should be opened above the inguinal ligament, to expose and control the limbs of the loop. They are gently held by one hand. The bowel in the sac is held by the other. One has command now of the whole situation, because, by very gentle, sliding, to-and-fro movements of the hands, working together, the loop is safely delivered into the abdomen. This measure usually obviates any need to divide the constriction ring.

If, on opening the sac in the latter case, the bowel is nonviable and the decision made to perform a resection and anastomosis, how may this be safely performed and infection of the peritoneal cavity prevented? The infected contents of the sac are swabbed out. The herniated loop is delivered further and resected between clamps. The ends of the bowel are then closed with purse-string sutures, the clamps removed, and the ends of the sutures left long. The area is given a final toilet with saline or weak cresol lotion. The surgeon changes his gown and gloves and opens the abdomen above the inguinal ligament. The purse-string sutures are threaded up through the femoral ring, and thus the ends of the bowel are brought into the abdomen, delivered and anastomosed. These measures may be well known to some, but others will find them useful if they encounter this emergency.—I am, etc.,

Edinburgh. W. A. COCHRANE.

Administration of Pentothal

SIR,—Dr. Montuschi (May 27, p. 731) has pointed out that many thousand intravenous anaesthetics will have to be administered in the next few months by relatively unskilled anaesthetists. For some time I have realized this and have endeavoured in teaching students at the Middlesex Hospital to give some fundamental rules, rather more comprehensive than Dr. Montuschi's excellent suggested admonition to limit the dose. I have recently published a synopsis of my undergraduate teaching on intravenous anaesthesia in the *Middlesex Hospital Journal*, March, 1944. If I may recapitulate the main points in your *Journal*, they may be of help to many temporary anaesthetists.

Technique of Injection

1. Never use a stronger solution of pentothal than 5%—i.e. 1/2 g. in 10 c.cm.
2. Use a 10-c.cm.-capacity eccentric nozzle syringe. This size is handier to hold than a 20-c.cm. and by its size will limit any injection to 1/2 g. The eccentric nozzle makes venepuncture easier.
3. Use sharp, short-bevel needles.
4. Have your patient in a stable position, so that when he relaxes he will not slump into a new position.
5. Be stable and comfortable yourself; sit, stand, or kneel at your convenience; do not balance on one leg and support the patient's arm on the other knee, and do not bend down over a very low bed.
6. Test the intravenous position of your needle point by aspirating blood back before you inject.
7. Inject *slowly*, watching: (*a*) the *patient* for developing unconsciousness and continued respiration; (*b*) the *needle point* to be sure you are still in the vein; (*c*) the *syringe* to see how much you are giving.
8. Lastly, but most important, *keep the airway clear*.

Dosage

There is no fixed dose. The amount that each patient needs can be determined only at operation by his reaction to the drug as it is administered. While the first few c.cm. are administered slowly the patient should be watched, his reaction to simple questions noted until he is seen to be asleep. He has now had the *sleep dose*. He

will need for induction or any very short anaesthesia a total of at least twice the sleep dose. The initial injection should never exceed a total of three times the sleep dose. More pentothal may be necessary during the operation; each such subsequent injection should not exceed the sleep dose.

Shock

Extra care should be taken in shocked patients to determine the correct dose, which is always much smaller than in normal patients. Halford (*Anesthesiology*, Jan., 1943) reports several fatal injections of 0.5 g. in shocked Pearl Harbour casualties, and I am not surprised. This shows that Dr. Montuschi's injunction is not enough. On the other hand, in the same volume of *Anesthesiology* Adams and Gray report successful extensive thoraco-abdominal surgery in a shocked woman, using repeated very small doses.—I am, etc.,

London, W.1. F. W. ROBERTS.

SIR,—In his letter (May 27, p. 731) Dr. Montuschi gives advice to the occasional anaesthetist, should he wish to give pentothal during the coming months. This presumably refers to expected casualties when the great offensive is launched, and in that case I know that I shall not be alone in disagreeing with some of his suggestions.

In my opinion there are two definite scales of dosage of pentothal. One is for normal fit people, aged approximately from 18 to 40. The other is for everybody else, especially the anaemic, the debilitated, all elderly persons, acute obstructions, and casualties. The greatest risk of overdosage is with cases that have had repeated doses of morphine, or high doses. Bad R.A.F. casualties are good examples of the last-named, as they usually get morphine gr. 1/2 at the time of the accident (a practice with which I do not disagree). The dosage in the second group can be as low as one-tenth of that in the first group, and failure to appreciate this has undoubtedly led to loss of life. This principle should be fully explained to all students, who should have as great a respect for pentothal as I think they have for a spinal-anaesthetic. Dr. Montuschi only refers to the first group, and as such his advice is sound. In these cases there is a considerable margin of safety, and if the occasional anaesthetist gives pentothal to these cases only he should get most satisfactory results; but to give "the whole of the small ampoule fairly rapidly" to the second group is sure to add to the already unnecessarily long list of pentothal deaths. I am sure that two people could be killed with that "small ampoule," providing they were bad risks.

It has been my lot to have to anaesthetize many serious casualties of all types, many of these being R.A.F. personnel. The only anaesthetic that I now give is (except for abdominal work, when I add a thoracic block) continuous pentothal, gas, and oxygen; but I am very convinced that one has to approach these cases very carefully. The keynote to safety is much oxygen and little pentothal. The worse the case the more certain I am that oxygen must be given before the pentothal, and that nitrous oxide should be introduced very slowly. The pentothal should be a 2½% solution and not the usual 5%; the rate of flow should be very slow. During the first five minutes it is wise not to give more than 1 c.cm. at a time. I have seen several cases lose consciousness on 1 c.cm. of the 2½% solution—i.e., 0.025 g. It would therefore not be surprising if such a case died after 3 to 4 c.cm. of a 5% solution given fairly quickly.

Let there be no hurry to reach deep anaesthesia. Many cases have yet to be undressed, etc., and for this very light anaesthesia is satisfactory. Nitrous oxide can be added if the colour remains good, but if it is less than good this should not be done. When adding N_2O I start with a 50% mixture, and never go below 20% oxygen on a bad case. More pentothal is much safer.

I also feel strongly that no one should use pentothal unless he can perform the simple procedure of inflating the lungs with oxygen by pressure on the bag. Then, if at any time respiratory depression should follow the administration of pentothal, the patient can be kept a perfect colour in absolute safety until respiratory movements recommence. This is so easily done that the surgeon is unlikely to know that the patient has stopped breathing. I have no doubt that if this was more widely known and practised the intravenous barbiturates would have a cleaner record.

Finally, even in these days of wholesale spending, economy should matter, and as a large ampoule is almost the same price as a small one, I see no reason why the anaesthetist should be advised "to forget the large one." What is left over from one case in a list can be used for the next case.—I am, etc.,

H. B. C. SANDIFORD,
E.M.S. Anaesthetist, Region 12.

Post-anaesthetic Vomiting

SIR,—In an article recording painstaking research on the effect of nicotinic acid on post-operative vomiting (May 27, p. 719) the authors state that results were "not significant." This leads me to think that perhaps it is not generally known that post-operative or, as it should be termed, post-anaesthetic vomiting can be controlled in almost all cases by the oral administration of 5 to 20 minims of a solution of adrenaline chloride 1 in 1,000 in an ounce or so of water. A single dose is often sufficient, but it may be repeated with safety if required. —I am, etc.,

Leamington Spa. BARBARA G. R. CRAWFORD.

Ether and the Oxford Vaporizer

SIR,—The article by Drs. Mushin and Wood on the effect of nicotinic acid on post-operative vomiting (May 27, p. 719) interested me as an example of the very valuable and original work that is constantly being carried out by the Nuffield Department of Anaesthetics.

I was, however, also interested in the light that this article inadvertently threw upon the actual incidence of post-operative vomiting after ether under the most favourable conditions. This series of 89 cases, admittedly uncomplicated, were anaesthetized by an expert using the Oxford vaporizer on its "home ground," and the admitted incidence of post-operative vomiting was no less than 74%! Truly "the cat is out of the bag"! The Oxford vaporizer is a very ingenious and excellent apparatus, which, to my mind, has only one disadvantage—namely, the fact that it delivers ether to the patient. Many writers in your columns have rightly eulogized the apparatus, but they have, almost without exception, been so overcome by their enthusiasm as to claim that the patients receiving ether through this medium were to a great extent spared those ill effects which are the inevitable aftermath of this anaesthetic.

The truth, as it is now revealed, confirms my own experience that ether unfortunately still remains ether even after passage through the Oxford vaporizer. It is a pity that the Oxford vaporizer was not designed twenty years ago. To-day the anaesthetist is rarely justified in submitting his patient to the discomforts and dangers attendant upon ether. It is to be hoped that the ingenuity and excellence of design embodied in the Oxford vaporizer will, before long, be put to better practical use.—I am, etc.,

Bournemouth. S. F. DURRANS.

Bone-marrow Transfusion in Children

SIR,—We are particularly interested in the recent article on "Bone-marrow Transfusion in Infants and Children" by Dr. Janet D. Gimson (June 3, p. 748). In this hospital a great number of transfusions are given to infants and children of all ages from one day to sixteen years. The average number of such transfusions exceeds forty per month.

Intravenous technique appears to be considered a complicated and difficult procedure, but the resident medical officers here rapidly become extremely proficient and only a few minutes are required to set up a transfusion. It is our opinion that transfusions of all fluids are best given to the infant or child intravenously. Thereby the amount of fluid which actually reaches the circulation can be most intimately and directly controlled in the safest and quickest manner.

Dr. Gimson mentions "the haunting danger" of osteomyelitis. We feel this to be a very real one. Adequate skin preparation for an operation involving bone cannot be done when parenteral fluid is a matter of urgency. Why, therefore, should it be necessary to jeopardize bone when so simple an alternative is at hand?—We are, etc.,

R. DERHAM.
M. A. HENDERSON.
M. B. OAKDEN.

Alder Hey Children's Hospital, Liverpool.

Death Rate from Peptic Ulcer

SIR,—I read with great interest Sir Henry Tidy's article in the *Journal* of May 20 on the death rate from peptic ulcer in Great Britain, 1912–38. It is a painstaking study, which gives much food for thought. Somewhere in it lies locked the secret of the aetiology of peptic ulcer. Several factors in the aetiology of peptic ulcer are undoubtedly involved. First, the rising age of the population. In 1937 there were 2,272 deaths from gastric ulcer in males (Registrar-General's Statistical Review, 1937, the last report available to me). The percentage distribution by age was as follows:

0	0·09%	40	7·8%
1	—	45	9·8%
5	0·4%	50	14·7%
10	—	55	14·4%
15	0·4%	60	13·8%
20	0·8%	65	11·7%
25	2·6%	70	7·1%
30	3·8%	75	4·8%
35	5·8%	80	2·2%

Therefore a large percentage of the mortality in males from gastric ulcer occurs at ages 40 to 70, especially 50 to 65. It is thus a disease of later life, and should be classed in its age incidence with cancer, diabetes, myocardial disease, and other degenerative diseases. The rising age of the population should result in increase of the gastric ulcer rate. A falling birth rate and saving of infant lives should show its effects after 30 or 40 years in increased figures for mortality from peptic ulcer. Why, then, the stationary rate 1912–21? There was a war (1914–18); there was the influenza epidemic, affecting males of all ages up to 55; there was dieting. Between the years 1909 and 1934 the intake of calories increased by 6%, but of animal fats by 25% (John Boyd Orr). This increase was interrupted in the war years, and after the war began to play its part.

But the question of the peptic ulcer is only a part of the larger question. The crude death rate per million in 1927 was 12,336, and in 1937 it was 12,419, an increase of 83 per million. But although the difference is comparatively slight, there were big falls in some diseases, balanced by big rises in other diseases.

Tuberculosis—a very steady fall till 1936 in all forms (972 per million to 695 per million): the only exceptions are genito-urinary tuberculosis, constant at about 7 per million; acute disseminated tuberculosis, constant at about 16.

Rheumatic fever	40 to 22	Bronchitis	840 to 436
Pernicious anaemia (a steady fall from 1932)	68 to 55	Pneumonia	948 to 720
Meningitis	37 to 22	Inflammation of the stomach	35 to 15
Tabes dorsalis	20 to 14	Diarrhoea and enteritis	158 to 120
General paralysis of the insane	39 to 21	Cirrhosis of the liver	47 to 30
Infantile convulsions	58 to 22	Diseases of pregnancy, childbirth, and the puerperium from 1934	4·41 to 3·13
Valvular disease of the heart (a steady fall from 1930)	681 to 516 (in 1930)		

The following diseases show a definite rise:

Diabetes	126 to 178	Leukaemia	16 to 23
Osteo-arthritis	63 to 84	Lymphadenoma	12 to 15
Malignant disease	1,376 to 1,633	Paralysis agitans	28 to 39
Diseases of the myocardium	772 to 2,040	Gastric or duodenal ulcer	101 to 112
(A steady rise due chiefly to myocardial degeneration)		Diverticulitis	4 to 14
Exophthalmic goitre	24 to 41	Spina bifida and meningocele	20 to 28
		Diseases of the prostate	169 to 243

Does this summary give cause for self-congratulation? Many of the falls in rates are due to better use of medical knowledge, applied to sanitation and food and treatment. Many of the increases in rates are due to the rising age of the population, but also to improved diagnosis, because there is registered a paradoxical fall in people dying of old age from 579 in 1927 to 414 in 1937. Where does our civilization go wrong? In food? In agriculture? Such are the questions raised by Sir Henry Tidy's article.—I am, etc.,

Southampton. E. S. A. KOSCHANSKY.

"Departmental Prescription"

SIR,—Why on earth do you keep on snarling at the Minister of Health? Your editorial on departmental prescription is the latest of a series of articles in which every effort of the Minister to plan and act for the benefit of the community is at best depreciated and at the worst so greeted as to try to make the public think that he is their worst enemy. The B.M.A. Council's suggestion that the health service proposals found their first inspiration in a desire to control an independent profession in order to control medical certification is most offensive, and similar innuendoes are to be found in many of its criticisms.

You don't seem to realize that the Minister is working in the interests of the community, and that those of the doctors are of small importance in comparison. I quite believe that your view of these interests may be different from his, but you must give him credit for a single-minded belief that his proposals are in the public interest. After all, he is advised by expert medical men.

The pamphlet on diets for patients with peptic ulcer is to my mind perfectly harmless and very useful. It may refresh the minds of some doctors whose *B.M.J.s* pile up unopened in a corner of the surgery—there are many such, I fear—and besides contains many helpful hints on wartime variants of the essential dietary. I would welcome similar notes on, for example, the early symptoms of pulmonary tuberculosis in adults and children, and there are other subjects I could name where some such advice would be desirable. It is nonsense for you to call a Public Relations Department "in effect a Government advertising agency," and if certain doctors do not like such suggestions being made to them there is always at their elbows the W.P.B. They may do good and in any event can do no harm.

You carp, too, at the requirement for practitioners to submit to the local food office evidence of the necessity for special foodstuffs in certain diseases. It seems to me perfectly rational when the foodstuffs are in small quantity. Twice within the last month mothers of children with coeliac disease have asked me for certificates of stool analysis that their children may get a ration of dried banana. I had these analyses made three years ago, but the children are well on the way to recovery, and I refused the certificates, which means that the banana powder is available for two acute cases. Here again your attitude is a travesty of what it should be.

The Minister may be misguided, but at least you should give him credit for a whole-hearted desire to do his best for the commonalty. Do, I beg you, cease to inflame the minds of the profession against him and his proposals. We were landed in a mess in 1911 by such counsels and came out of it with our professional tails well between our legs. I see with dismay and dread the same unreasoning opposition growing and the same debacle approaching. The whole is always greater than the part.—I am, etc.,

Coventry. W. FRASER ANNAND.

SIR,—How right you were to call attention to the ousting of Aunt Sally as the symbol of unpopularity in favour of the bureaucrat. Surely a much uglier phenomenon and a far more worthy target for brickbats!

The whole country appreciates the work of the Ministry of Food *qua* Ministry of Food in feeding our people under most arduous conditions during five years of war. But the Ministry of Food *qua* medical tutor magnifies its office, and should have reflected for a moment before issuing the leaflet on "Diets for Patients with Gastric and Duodenal Ulcers," which is more suitable for patients than for experienced practising medical men, who do not need to be told that curries and condiments are bad for such patients. Nor, strange though it may seem to the Ministry of Food, do they need to be told that proteins are body-building foods, etc.

It is noted that the Ministry does not advise administration of vitamin C in the form of ascorbic acid, which those of us who see and treat large numbers of such cases prefer to purées and other forms as being convenient and more effective. Fresh vegetables, however prepared, are bulky, apt to cause flatulence, and, at a time when all households are short-handed, require some amount of time and skill in their preparation. Moreover, the vitamin content is inconstant and depends on careful cooking.

It is observed from the leaflet Med. 1 that practitioners with large tropical experience, possessing special qualifications in tropical medicine, are not allowed to diagnose amoebiasis or bacillary dysentery, even though they may have isolated the parasites. They are required to call in the medical officer of health, who may be entirely without clinical experience of either, because only he is competent to certify. Neither are such practitioners considered capable of diagnosing sprue, even

though they may have seen and treated more cases than the whole of the "medical advisers" put together.

The position with regard to diabetes is interesting. Any practitioner is considered capable of diagnosing it, and no distinction is required between glycosuria due to low renal threshold and that which is truly pancreatic in origin. Is this due to omission or is it a complimentary gesture to the G.P.'s skill in clinical pathology?

Certain conditions in Schedule D of Med. 1 are reminiscent of the old quack medicine advertisements. They call for "detailed statements," blood-sugar estimations, lists of symptoms, description of tests carried out, and, in two cases, require "admission to a hospital for a few days at the patient's own expense," where the patient must undergo a "comprehensive test." If he is not prepared to do this he is denied the necessary article of food. All these clinical data are set down in writing and forwarded to the local food officer (!), who forwards them to the Ministry of Food, who submits them to "the medical advisers." When the Ministry of Food receives a "favourable decision" arrangements are made by returning the necessary documents to the local food office, but it is stated nowhere that there is any obligation on the latter to notify the patient that his prayers have been answered. Moreover, when the inevitable delay and procrastination inseparable from official correspondence are considered, some idea may be formed of the length of time this typical procedure is likely to take; and it must be understood that during the period of waiting no emergency interim issue of the food applied for is permitted.

In medical practice any doctor who professed to diagnose disease by correspondence without clinical examination would be regarded, and rightly so, as a charlatan and guilty of "infamous conduct in a professional respect." His chances of being struck off the *Register* would be quite favourable.

Bureaucrats, or as you prefer to call them "administrators," are becoming increasingly prone to interpose themselves between the doctor and his patient as the date for discussion of the White Paper approaches. They are playing a very dangerous game and they will be well advised to keep out of it. —We are, etc.,

H. M. STANLEY TURNER.
A. C. DE B. HELME.
JOHN REES.
DAVID HALER.

Guildford Practitioners' Group.

Character and Personality in the Medical Student

SIR,—Dr. E. D. Broster (May 27, p. 729) appears to be bewildered by the changing world around him, his bewilderment expressing itself in a disjointed cynicism.

He refers to the "apotheosis of the so-called under-dog" and the "belittlement . . . of eminence." He suggests that the attempts to enlarge the field of recruitment of doctors will add to the ration of "general bemusement." This is all due to the "failure to grasp at fundamentals." Then he attempts to name a few of these, claiming at the same time that "millions of pounds are wasted annually in an effort to inculcate traits of character which are hereditarily non-existent . . . which are promptly and effectively annulled in any home where ignorance, stupidity, idleness, dirt, and vice are the pattern." If millions of pounds are in fact thus wasted each year, this statement must include a considerable proportion of the working-class homes of the country as those where ignorance, stupidity, etc., are the pattern. If it was not intended to include so large a proportion of homes, then the amount wasted cannot run into millions of pounds, so that the statement is either a scurrilous condemnation of the standard of life and culture of the working class or else it is a meaningless exaggeration. In fact, it is doubtful if proportionately any more is wasted in trying to educate the working classes than in trying to educate those of a "certain high standard of living."

Your correspondent then claims that "if the laws of heredity have any validity at all . . . the most fruitful field of higher civilization is little likely to be found in the worst types of home." Again, "the Government, in obedience to the loudest clamour, gives almost direct encouragement to the least worthy to reproduce themselves in the greatest numbers and a corresponding discouragement to their betters." Apart from the questionable accuracy of this last statement, there is implied another gross libel—that those of "a certain high standard of living" are "of the best stock," and "better" than those who have neither "wealth nor position" (this last term being admittedly a "dangerous side issue"). It is true that the wildness and scope of the generalization reduce its value; in fact, it is doubtful if it has any value at all, it being self-evident that in character, common sense, and general intelligence members of the "lower" working classes have few equals. Certainly you will never find a more burning desire for knowledge and culture among the more privileged classes than among the working classes, even if only because these are out of reach of the latter. Any attempt to classify those without worldly social advantages as inferior to those with them can only be the result of inaccurate observation and a peculiar idea as to what makes one superior or inferior.

Apparently Dr. Broster's fears arise because "the laws of heredity and breeding of the best stock are being ignored, and Nature flouted by man himself in relation to himself"; also because the Government is trying to produce a nation recruited from the "worst types of home," a policy which cannot end "but in the deterioration of the race." But this is not all. Even "eminent men not infrequently marry empty-headed women, and succeeding generations deteriorate." This is most alarming because, as Dr. Broster says, these are the very men who can arrest "the deterioration of the race." Furthermore, "individuality, personality, and character are being ironed out and gradually we become a race of automatons." Finally, if you can face a further horror, ". . . the medical profession is to become the chattel of politics."

There is no more to be said. Evidently the ability to observe, think, and write clearly has been lost with the ability to "grasp at fundamentals."—I am, etc.,

H. E. VICKERS.

Park Prewett Hospital.

Colonial Medical Service

SIR,—I hope I am not too late to add my testimony to the good work and the efficiency of the Colonial Medical Service. I had the privilege of seeing something of its organization on the administrative side during my time in the Colonial Office, and of the quality of those who were accepted for the service. I have also seen it in actual operation in a number of Colonies, and during my visit to a mandated territory I came under the care of its personnel as a patient, when I received the very best care and skilled attention. Both doctors and nurses are a credit to the Service, and it is most unfortunate that an ill-considered and inaccurate comment on its merits should have been given such wide publicity.

The only fault of the Colonial Medical Service is that it is too small. In every territory its members are overworked, and are not sufficient in numbers to cope with the need. It has already established a fine tradition, and it only needs extension on the same lines to fit it more adequately for its great task. It is to be hoped that its members will be assured that the devoted and efficient service of its doctors and nurses is appreciated most by those who know best what has been and is being done.—I am, etc.,

T. DRUMMOND SHIELS.

London, S.W.1.

SIR,—Perhaps I may be allowed to inform B.M.A. members that the absence of a reply from me in the *Journal* apropos of the attack on me by Lord Hailey and others does not imply my death or any weakness on my part, but is due solely to the fact that my rejoinder has been denied publication on the ground that it is "quite unsuitable for publication in our *Journal*—or indeed anywhere—on account of the violent personalities it expresses"! Apparently the ennobled and the knighted and one other can attack me with impunity, but censorship bars my reply.—I am, etc.,

H. B. MORGAN, M.D., D.P.H., M.P.

London, N.W.6.

Dr. R. E. G. Armattoe, director of the Lomeshie Research Centre for Anthropology and Human Biology, and honorary physician in charge of Brooke Park (E.M.S.), Londonderry, has been elected a Foreign Member of the American Association of Physical Anthropologists, and a Patron of the Free German Institute of Science in London.

Obituary

By the sudden and untimely death on May 14 of Dr. GUSTAV WEBER THOMPSON, Wellington, Salop, the profession in Shropshire loses, at a time when such can ill be spared, one of its doughtiest champions and most forthright spokesmen. After a distinguished career in India which gained for him the decoration of Commander of the Order of the British Empire, Thompson came to practise in Wellington some fifteen years ago, and during that time not only built up a fine practice but had become an acknowledged leader of the local profession. A keen committee man, he was a Freemason and Rotarian, a member of the council of the Shropshire and Mid-Wales Branch of the B.M.A., and a member of the County of Salop Insurance Committee; he took an active part in the management of most of the local medical charities and of the Wellington College Hospital. It was largely his initiative and energy that brought about, shortly after the outbreak of war, an amalgamation of the medical practices in the town of Wellington, an experiment in group practice that is likely to remain as a permanent memorial to its principal founder: in the early months of this year he took a prominent part in the reorganization of the town nursing services. Thompson's drive and energy will be sorely missed; a certain brusqueness of manner and vehemence of speech cloaked a nature kind, sensitive, and generous; he was truly beloved by his patients, and many beside the writer know that they have lost a staunch ally and friend.—W. R. H. P.

Medical Notes in Parliament

Legislation on N.H.S.: No "Absolute Guarantee"

On June 6 Sir E. GRAHAM-LITTLE asked the Minister of Health whether, as he had postponed, *sine die*, negotiations with the medical profession regarding the proposals of the White Paper, he would give an assurance that he would not introduce in Parliament any Bill dealing with these proposals until those negotiations were completed. Mr. WILLINK: I recognize that the discussions, which I am, of course, ready to start at any time, will have to be delayed owing to the postponement, for reasons connected with the war, of the proposed conference of the profession. My desire to hold these discussions before introducing legislation is in no way altered by the postponement, even though I am unable, in view of the many uncertainties, to give so absolute a guarantee as Sir Ernest Graham-Little suggests in his question.

On June 8 Dr. HOWITT asked the Minister of Health, in view of the postponement of the Annual Representative Meeting of the B.M.A. at the request of the Government, to give an assurance that legislation on a national health service would not be introduced by him until after negotiations had taken place between him and the medical profession, bearing in mind that under its constitution only the Representative Body of the B.M.A. could determine the Association's policy. Mr. WILLINK said he could not give an assurance quite so absolute. It was still his wish to have full discussions with the profession before introducing legislation. He saw no reason why he should be prevented from doing so by the delay which would be caused by the profession's inevitable postponement of its conference.

Colonial Medical Service

In the House of Commons on June 6 Col. OLIVER STANLEY, Secretary of State for the Colonies, opened a debate on colonial administration and plans for the future. He said that the basis of the planning machinery he had tried to set up was, first of all, a colony development committee. That was now in force in nearly all the big Colonies. Its make-up must vary in each Colony, and it must include the heads of the various departments, because they were the people who would put up the detailed planning, it might be of health services or of agriculture. The important subjects of research and medical policy would have to be discussed on another occasion. Medical policy was the twin pillar of education in the new colonial foundation.

Col. Stanley said he wanted to refer to a recent speech made by Dr. Morgan, who was not in his place in the House that day. He had thought Dr. Morgan was so interested in colonial development that it had never struck him that he would not be present. Therefore he had not given Dr. Morgan any notice that he would raise this matter, and he thought a wise compromise would be that he (Col. Stanley) should relate the facts and postpone the comments which otherwise he would have felt entitled to make. Dr. Morgan, speaking in quite another debate—that on the National Health Service—without any warning to him (Col. Stanley) and for no reason that he could see, and certainly for no reason that Dr. Morgan gave, suddenly told the House: "I can tell hon. members that the Colonial Medical Service is a disgrace."

Of course, added Col. Stanley, they all knew Dr. Morgan, who was, he always thought, rather like his famous medical predecessor, Dr. Jekyll. At times Dr. Morgan offered quite cogent and constructive suggestions, but there were intervals when his interjections were, to say the least of it, irrelevant and irresponsible. This occasion was a case with Dr. Morgan, he would say, of the Hyde side out. Words spoken in the House went out to an immensely wide circle. Dr. Morgan's remarks went out with no explanation or justification, they caused, as he (Col. Stanley) knew, great bitterness of feeling among many people who were themselves affected in this matter, and there was no justification for them. The Colonial Medical Service had had many difficulties to grapple with, and had often been short-handed and short of funds, but that was not its fault. For the members of the Colonial Medical Service he had nothing but admiration and gratitude for their self-sacrificing efforts on behalf of the colonial territories.

Dr. HADEN GUEST expressed regret that Dr. Morgan was not present. He was a parliamentary and medical colleague of his, and it would have been better if Col. Stanley had quoted the exact words which were used. If Dr. Morgan had said that the medical services in many of the Colonies were—putting in a different adjective—very inadequate, he thought Col. Stanley would have thoroughly agreed with him. It was well known that the medical services were inadequate. He had discussed this matter with Dr. Morgan, and thought that that was really what he meant.

Col. STANLEY said that that might be so, but Dr. Morgan did not say it. His actual words were: "The Colonial Medical Service is one of the worst in the world. I represent the colonial doctors on the British Medical Association in certain parts of the world, and I can tell hon. members that the Colonial Medical Service is a disgrace."

The Services

Col. R. Errington, C.B.E., M.C., T.D., T.A., has been appointed an Honorary Physician to the King and Col. (Temp. Major-Gen.) Sir E. M. Cowell, K.B.E., C.B., D.S.O., T.D., T.A., an Honorary Surgeon to the King in succession to Cols. F. Whalley, C.B.E., D.S.O., T.D., and A. R. Moodie, T.D., late R.A.M.C.(T.A.) (ret.), respectively.

Col. (Temp. Brig.) J. C. A. Dowse, C.B.E., M.C., late R.A.M.C., has been appointed a D.M.S., with the acting rank of major-general.

Temp. Surg. Lieut. M. J. Hood, D.S.C., R.N.V.R., has been mentioned in dispatches (posthumously) for gallantry in going to look for wounded below decks when a merchant ship was torpedoed.

DEATHS IN THE SERVICES

Major-General HOWARD CARR, C.B., M.D., M.Ch., A.M.S. (ret.), died on May 23 at Southampton at the age of 80. He was educated at Queen's College, Cork, and took the M.D. of the Royal University of Ireland. He entered the Army Medical Service, as it then was, in 1884 and saw much active service during his long period in the Army. He took part in the Burma campaign of 1885-7, the Miranzai expedition of 1891, the Dongola campaign of 1896, the Nile expedition of 1898, the South African War in 1900-2, and lastly in the war of 1914-18. During his active career he appears to have received seven medals and was twice mentioned in dispatches, and in 1915 he was awarded the C.B. for his good work in the responsible post of D.M.S. on the lines of communication in France. He retired in 1919, lived at Netley on Southampton Water, and indulged in his favourite sport of yachting as a prominent member of the Royal Southern Yacht Club.

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—Temp. Major R. Bolton, M.B.E., R.A.M.C.

Prisoners of war.—Temp. Major H. M. S. G. Beadnell and War Subs. Capt. J. W. Goronwy, R.A.M.C.

Prisoner of war.—War Subs. Capt. A. Berkeley, R.A.M.C.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

On June 1 Dr. T. Shirley Hele, F.R.C.P., Master of Emmanuel College, was re-elected to the office of Vice-Chancellor, for the academical year 1944–5.

During the month of May the title of the degree of M.D. was conferred by diploma on G. M. Allen-Williams of Newnham College. At a Congregation on May 20 the degrees of M.B., B.Chir. were conferred by proxy on J. B. Lyon.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council held on June 8, with Sir Alfred Webb-Johnson, President, in the chair, a resolution of condolence was passed on the death of Sir Cuthbert Wallace, Bt., a Past President of the College. The award of the Sir Gilbert Blane Medal to Surg. Cmdr. W. A. Hopkins, O.B.E., M.D., R.N., for his work in a number of fields of research was reported. His research work included: (*a*) The efficiency of spindle oil in the prevention of the spread of streptococcal infection. (*b*) Bacterial content of the air, examined by the "slit" machine. (*c*) Treatment of acute rheumatism, a disease which is a prolific cause of the loss of time through sickness in the Navy. A resolution of thanks was given to Mrs. Ashford for a gift of some eighteenth-century medical books.

A Diploma of Membership was granted to P. S. Smith and Diplomas of Fellowship were granted to D. C. Williams, M. M. Brown, G. Brosnan, Margaret D. Snelling, A. I. T. Lloyd, and I. M. Hill.

Diplomas in Anaesthetics were granted jointly with the Royal College of Physicians of London to the following candidates:

D. M. Armstrong, W. B. Bacon, B. N. P. Bannatyne, D. R. Blunn, Mary L. Brown, H. A. Buck, T. A. R. Callender, T. D. Culbert, H. V. Edwards, R. Foregger, D. L. V. Fraser, C. E. D. H. Goodhart, A. J. Gray, A. T. Hawthorne, R. Herschkowitz, A. S. Kenney, E. Kern, M. Kuttner, R. Lee-Michell, J. T. Linklater, Christine M. Millar, F. R. P. O'Hara-Proud, D. I. Rees, Laura M. Rhodes-Clooney, B. W. T. Ritchie, Edith Roth, J. V. Shemilt, M. P. Sherwood, S. Singh, J. A. Smith, F. J. R. Stoneham, J. W. Warrick, W. R. Watson, W. D. Wylie.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the incidence of measles rose steeply by 407 cases. Scarlet fever notifications exceeded those of the previous week by 120, but the total for whooping-cough and diphtheria fell by 192 and 91 respectively.

Diphtheria was less prevalent in most areas, and the total notifications were the smallest for any week since August last year. Notifications of scarlet fever rose by 56 in Lancashire and by 30 in Essex. The rise in whooping-cough was confined to the West Midlands, where the cases went up from 241 to 292; Middlesex had 55 fewer cases than last week. The increase in measles was due to a few counties only—Lancashire with 148 more cases than last week, Kent 102, Wiltshire 54, and Middlesex 47.

Dysentery notifications numbered 274, or 2 fewer than last week. The only large new outbreak was in Bedfordshire, Biggleswade R.D. 33. Other high returns were: Lancashire 62 (Blackburn R.D. 17, Manchester C.B. 12, Burnley C.B. 10), London 27, Middlesex 20, Surrey 16, Glamorgan 13, Yorks East Riding 12, Warwickshire 11, Essex 10.

In *Scotland* the total notifications of measles and whooping-cough fell by 50 and 32 respectively, but for scarlet fever there was a rise of 45. A small rise in scarlet fever was general throughout the country. The high level of dysentery was slightly increased, 7 more notifications being recorded than in the preceding week. The chief centres of infection were Lanark County 26, Glasgow 17, Edinburgh 16.

In *Eire* the incidence of measles rose by 49. In most areas it fell, but two large outbreaks affected the returns for the whole country—Mayo, Bellmullet R.D. 109, and Dublin, Balrothery R.D. 37. Another case of typhus was reported from Roscommon, Castlerea R.D.

Week Ending June 3

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,479, whooping-cough 2,273, diphtheria 471, measles 2,758, acute pneumonia 794, cerebrospinal fever 71, dysentery 187, paratyphoid 2, typhoid 6.

No. 21

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 27.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1944 (a)	(b)	(c)	(d)	(e)	1943 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	57	4	31	1	2	80	6	21	1	1
Deaths		—	1				2	—		
Diphtheria	507	21	126	58	25	712	46	180	73	30
Deaths	6	—	5	4	—	24	1	2	—	—
Dysentery	274	27	88	—	1	116	13	50	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	3	—	2	—	—	1	—	—	—	—
Deaths		—				—	—			
Erysipelas			37	3	2			49	10	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				13					19	
Deaths	47	11	8	12	3	33	8	7	9	6
Measles	2,662	217	429	260	25	7,395	429	509	27	40
Deaths	—	—	2	5	—	6	—	—	—	—
Ophthalmia neonatorum	71	2	15	—	—	88	3	16	1	—
Dea h:										
Paratyphoid fever	4	—	7(B)	3(B)	—	10	—	—	—	—
Deaths	—	—	—		—	—	—	—	—	—
Pneumonia, influenzal*	774	53	3	5	6	760	41	12	3	5
Deaths (from influenza)	19	3	2	—	1	13	2	2	—	—
Pneumonia, primary			206	24				211	23	
Deaths		24		14	5		22		11	12
Polio-encephalitis, acute	—	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	7	—	2	—	—	3	—	—	3	—
Deaths		—					—	—		
Puerperal fever		2	15		—		5	16		—
Deaths										
Puerperal pyrexia†	165	4	19	2	2	158	16	14	3	3
Deaths		1					1			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,853	117	217	32	53	1,997	167	268	38	51
Deaths	2	—	—	—	1	3	—	—	1	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	9	1	7	4	1	5	1	6	8	2
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	1	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough	2,427	241	150	53	16	2,233	115	227	43	41
Deaths	23	6	2	—	—	9	2	4	—	1
Deaths (0–1 year)	363	55	53	32	22	336	40	65	27	25
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,361	630	606	226	115	4,202	590	569	210	133
Annual death rate (per 1,000 persons living)			13·9	14·7	‡			12·8	13·8	‡
Live births	7,965	933	988	563	303	6,767	870	927	401	314
Annual rate per 1,000 persons living			20·1		‡			18·9	26·4	‡
Stillbirths	215	23	44			201	22	33		
Rate per 1,000 total births (including stillborn)			43					34		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

Mr. Norman Dott's Morison Lecture before the Royal College of Physicians of Edinburgh, announced for June 23, has been postponed indefinitely.

The Lloyd Roberts Lecture for 1943–4 will be given at the Royal Society of Medicine on the afternoon of Tuesday, July 11, by Prof. O. T. Jurasz, dean of the Polish Faculty of Medicine, Edinburgh. Subject: "Former and Post-war Health Problems in Poland."

A cable has been received at B.M.A. House from the Soviet Scientists Anti-Fascist Committee in Moscow. It states that a meeting will be held on Sunday, June 18, to discuss the crimes against science of the German Fascist invaders, and the work of restoring scientific research and cultural institutions in the liberated areas. The proceedings of the meeting will be broadcast. The committee in Moscow sends greetings to scientists in this country and expresses the hope that collaboration and solidarity between men of science will speed the victory of the United Nations over German invaders.

The annual general meeting of the British Association of Physical Medicine will be held at 11, Chandos Street, London, W.1, at 4.30 p.m. on Wednesday, June 21.

Lord Horder will give a presidential address to the Food Education Society on "Food Education: Principle and Practice," at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Monday, June 26, at 3 p.m. Inquiries should be sent to the headquarters of the Society, 29, Gordon Square, W.C.1.

The London Section of the Oil and Colour Chemists' Association announces three lectures on colloidal science to be given by Prof. E. K. Rideal, F.R.S., on Thursdays, July 6, 20, and 27, at 6.30 p.m., at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C. The general heading of the lectures is "Surface Action." The inclusive fee of 10s. for the three lectures should be sent to Mr. David E. Roe, c/o Atlas Preservative Co. Ltd., Fraser Road, Erith, Kent.

War conditions permitting, a meeting of the British Rheologists' Club will be held at St. Hilda's College, Oxford, from Thursday evening, July 6, till Sunday afternoon, July 9. Accommodation and board will be available at St. Hilda's and Hertford Colleges. A few rooms are still available for guests. Particulars may be had from the hon. secretary, Dr. G. W. Scott Blair, c/o the National Institute for Research in Dairying, Shinfield, Reading, Berks.

The Trustees of the Lady Tata Memorial Fund announce that, on the recommendation of the Scientific Advisory Committee, they have agreed, if circumstances permit, to make the following awards for research in blood diseases, with special reference to leukaemia, in the academic year beginning Oct. 1, 1944. *Grants for research expenses:* Prof. L. Doljanski (Jerusalem); Dr. J. Furth (New York); Dr. P. A. Gorer (London); Dr. A. H. T. Robb-Smith (Oxford). *Part-time personal grant and grant for research expenses:* Dr. W. Jacobson (Cambridge).

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 2111. TELEGRAMS: *Medisecra Westcent, London.*

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Mongolism

Q.—*What treatment, glandular or otherwise, has proved of benefit for mongolism?*

A.—Mongolism is an inborn structural fault which shows itself by a characteristic form of idiocy and a characteristic physical appearance. It is not an endocrine disorder. It is not a deficiency state. There is no known treatment which will cure or alter these physical faults, and a mongol always remains a mongol. But medical treatment does not stop short at the giving of drugs or manipulation of surgical instruments, and although there is no curative treatment for the mongol child, a great deal remains to be done to advise and help the parents. It is part of the art of medicine to know when to tell the parents that their child is a mongol, to know how to tell them, and to prevent them from measures which they will afterwards regret. No gratitude is more sincere or more richly earned than the gratitude of parents towards a doctor who has given them the faith and hope that the care of a mongol child has its compensations. This in itself is a form of treatment.

Prevention of Breast Abscesses

Q.—*For the past few months we have had an alarming number of breast abscesses among our post-natal women. They receive instructions on the care of the breasts during their ante-natal period, and the majority are given vitamin A and D capsules. After delivery they receive vitamin tablets containing A, B, C, and D, and ferrous sulphate tablets, and are encouraged to breast-feed. However, within a few weeks of leaving hospital breast abscesses occur. They are, on leaving hospital, visited regularly by health visitors or their own doctor, but the majority discontinue breast-feeding as soon as they go home. Would it be practicable: (a) to give a prophylactic course of sulphonamide to each patient, or at least to those who are in any way troubled with their breasts—e.g., cracked nipples, engorgement; (b) never to start breast-feeding in those who are not keen to breast-feed; (c) to give any further treatment during their ante-natal period? When is it correct to use the breast pump, if ever?*

A.—Breast abscesses are caused by infection with bacteria which reach the breast tissue either from a cracked nipple or by bloodstream metastasis. It is doubtful whether treatment with vitamins and iron can do more than increase the body resistance to infection. A cracked nipple is the usual cause of a breast abscess. An aggravating factor is failure of complete exhaustion of the breast during feeding, and this is particularly likely to happen if the woman does not want to feed her baby. A cracked nipple is usually produced either because the infant has been put to the breast for too long during the first two days of life or because a vigorous infant has damaged the skin of the nipple in the early days of feeding. Much can be done to prevent the development of a cracked nipple by good midwives carefully supervising feeding during the first week.

If a cracked nipple develops it should be treated by the local application of a lotion containing glycerin of tannic acid, ʒj; liquor sulphurous acid, ʒj; sulphathiazole, gr. 50; water, ad ʒj. The lotion is applied after the feed and wiped away immediately before the infant is again put to the breast. It is doubtful if much can be expected of prophylactic doses of sulphanilamide given by mouth. With very careful supervision, breast engorgement can be perfectly controlled by small doses of stilboestrol, even when the child is being breast-fed. Whether breast-feeding is to be insisted upon when the mother does not want to feed her baby is clearly arguable. Many mothers change their minds when breast-feeding becomes established. There is no doubt that if a woman persists in her desire not to breast-feed, there is a much greater risk of the development of a breast abscess.

Simple methods of cleanliness combined with measures to evert the nipples are all that is necessary during the ante-natal period. Breast pumps are very much in disfavour at the present time, except for everting nipples ante-natally. When used during lactation they cause great pain and aggravate cracks. Manual expression is a far better method of emptying a breast.

Chronic Mastitis and Pregnancy

Q.—*My wife has recently had a portion of one breast removed for chronic cystic mastitis. In the circumstances, is it advisable to undergo another pregnancy, or do you consider that further development, would be likely to occur in the remaining breast tissue, or that malignant changes might supervene?*

A.—There is no evidence that pregnancy causes the development of chronic cystic mastitis. Nor is there any evidence that malignancy may arise in the breast tissue as a result of either pregnancy or lactation. There is therefore no medical objection to a further pregnancy in this case.

Marriage and Tuberculosis

Q.—*A man of 30, whose father and brother died of pulmonary tuberculosis, wishes to marry. The father died about 16 years ago and the brother about six years ago. The young man appears healthy on clinical examination. The tuberculin test is positive. Sedimentation is normal (5 millimetres in 1 hour). X-ray film of the chest is normal, and the sputum is negative. He wants to know what risks there would be to his children if he got married, as he wishes to do. If marriage and having a family are considered advisable, what steps should he take to safeguard their health and his?*

A.—Your correspondent may reassure his patient with confidence. A positive Mantoux test in a man of his age is usual, apart from known contact infection. As he is free from clinical tuberculosis,

the only possible dangers to his wife and prospective children are (1) that the father subsequently develops tuberculosis of the lungs and infects them; (2) in certain families there seems to be a poor resistance to tuberculous infection if it is met. From the information given there is no reason to suspect the latter. As it is six years since his contact died it is unlikely that the patient will develop pulmonary tuberculosis himself from this source. As safeguards, he could have his chest *x*-rayed each year, and should keep up a high standard of general health. No special precautions are necessary for the wife and children.

Treatment of Ringworm

Q.—*What is the best modern treatment of ringworm of (a) the head, (b) the body in children? How long does it take to cure?*

A.—Ringworm of the head—that is, the infection of the hair on the scalp in children—is best treated by *x* rays by the approved technique, a matter for the expert only. This is a mechanical procedure causing the diseased and healthy hair to fall out, thereby ridding the patient of the infection. It should be noted that ringworm of the head dies out at puberty, and that *x*-ray treatment is contraindicated in the inflammatory form of the disease. The hair has generally fallen out in four weeks, and when this has occurred complete cure may be assumed. The slight risk of permanent alopecia, usually limited to a small area, has to be taken into account. Acetate of thallium, given in one dose by the mouth, also a means of obtaining mechanical depilation, is not favoured in this country.

Body ringworm in children presents an easier problem because the fungus can be reached and destroyed by external agents. Three applications of the mild tincture of iodine are often curative in suitable cases; brilliant-green solution or gentian violet, 1%, provides an alternative. Daily application of a 3% benzoic and salicylic acid ointment cures in one to three weeks. It is essential to avoid over-treatment, which often misleads by producing a patch of traumatic dermatitis resembling the original lesion.

? Pituitary Obesity

Q.—*A man aged 27 has noticed a gradual increase in weight during the last four years, from 229 lb. to 248 lb., in spite of intermittent diets. His main complaint is that he is easily dyspnoeic. He has occasional dull headaches, but no vomiting or change in vision. Examination of the various systems reveals nothing abnormal except for generalized obesity. B.P., 160/80. Exercise tolerance test: 100, 164, 136. Dyspnoea, +. Gonads normal. Skin smooth and moist. Radiological report: abnormally small pituitary fossa in relation to the skull. Diagnosis, pituitary obesity. Please advise regarding diet and endocrine therapy.*

A.—The history is suggestive of an intracranial lesion in the neighbourhood of the third ventricle, and complete neurological and ocular investigation should be undertaken. If all investigations are negative, a diet of 800 calories daily, and thyroid extract by mouth to the point of tolerance, as judged by pulse rate, should be tried. Pituitary gland by mouth has no effect. The case should be reviewed periodically, even if investigations are negative.

Unusual Syndrome

Q.—*A patient six months after a normal delivery, at the age of 25, developed a distressing urinary frequency accompanied by retching or vomiting. The latter stops at once as soon as the urine (usually a small amount only) is passed. The symptom is most marked in the early morning. Gynaecological and urological examination reveals no abnormality. At first there was loss of weight and asthenia as well, but these have improved. How should one treat such a case?*

A.—This is an unusual combination of symptoms. The question cannot be answered without first arriving at a diagnosis. General medical examination, gynaecological examination under anaesthesia, cystoscopic, bacteriological, and possibly radiological examination are all indicated.

Smell and Sex

Q.—*A young woman of 27, married, complains that her husband is very distressed on account of a strong, unpleasant smell which he notices at the time of intercourse. She herself does not smell anything objectionable and thinks the husband is "imagining." Another woman, 39, married, no children, says that her husband refuses to have intercourse for a similar reason. Both women are clean, healthy, bathing frequently and always before intercourse. Both husbands are healthy; there is no history of venereal or any other disease in either. What is the cause? What is the treatment?*

A.—The question does not indicate whether the smell comes from the mouth, or from the genitals, or from the body. It is obvious that dental sepsis and gastro-intestinal disorders should be excluded, though they are unlikely to be the cause. All human beings give off some odour, usually imperceptible, but, judged by the performance of the bloodhound, quite characteristic for the individual. Nevertheless, it is probable that the real explanation of the complaint is that given by one of the wives, who postulates that her husband is "imagining." Sexual intercourse in animals is closely associated with the functioning of the sense of smell, and infantile fantasies about sex are associated with the anus rather than with the vagina. An investigation of the husband's attitude to women and sex might prove illuminating and therapeutically helpful. Perfume has been used by women from time immemorial for the purpose of attracting the male, as well as for aesthetic reasons, and the use of scented bath salts might be of value as substituting something positive and pleasant for the unpleasant fantasy the man may have.

Malignant Prostate

Q.—*A patient aged 60 had his prostate removed a year ago. He never regained proper use of his bladder, and 9 months later the surgeon who inserted a de Pezzer stated that the bladder was "half full of growth." He also had pain and marked weakness in one leg suggestive of a secondary growth in the spine. He received 1 mg. diethyl stilboestrol in oil intramuscularly for two months, and has received a tablet of the same strength since for six weeks. He has greatly improved and is no longer bedridden; he can walk two miles, the leg weakness having completely disappeared. Lately on taking his tablet of stilboestrol he has been troubled with rather severe pain in the neck of the bladder, and some drops of urine are simultaneously passed per urethram. What strength of stilboestrol should be administered and for how long?*

A.—It is assumed that the prostate removed a year ago contained a malignant focus, and that there is some infiltration of the bladder neck. Although the patient complains that the pain comes on after taking his tablet of stilboestrol, it is unlikely that this is responsible for it. It is far more probable that the pain is due to bladder infection and the existence of growth. The administration of stilboestrol must be continued indefinitely. There is no advantage in giving it as an injection, as it acts equally well by mouth. He is receiving less than the usual dose, and two tablets a day should be tried. The indication for reducing the dose is usually soreness of the breast.

LETTERS, NOTES, ETC.

First Aid

Col. C. M. FINNEY (Bearsden, Dunbartonshire) writes: The correspondence on this subject seems to be resolving itself into an argument between those who criticize the St. John first-aid manual and those who regard it as holy writ. Surely a practical outlook is required. Considering that the manual was last revised before the present war it has surprisingly few real errors, and is an excellent outline of the subject. But there appears little necessity for slavishly following all it contains. I have been giving lectures on first aid for many years both in and out of the Army, and have always tried to get the classes to realize that the subject is essentially a practical one, and to teach them methods which they are capable of carrying out under the conditions of total warfare. Anyone may be called upon to deal with a casualty, and should know what to do and what not to do. The study of first aid is to enable the student to help save life and limb, not to pass examinations. But a candidate who has a sound practical knowledge of the subject is not likely to fail in an examination, even if his answers are not strictly in accordance with the manual. Where the latter differs from what I consider to be the correct line of treatment I warn candidates that possibly a "book" answer may be expected by the examiner. Where instruction is given by a lay lecturer it may be wise for him to follow the manual, but I suggest that a medical man should be familiar with the latest advances in first-aid treatment, and should be able to give instruction to his class such as will enable them to be of real help to the community when called upon to deal with a casualty.

Byssinosis

Dr. JOHN C. BRIDGE (London, S.W.1) writes: In case any reader should imagine that the disease byssinosis is subject to compensation to workers in a woollen mill, as suggested in the answer on page 737 of your issue of May 27, may I point out that compensation is strictly limited to male workers in certain specified occupations employed in cotton card-rooms or other specified parts of factories engaged in the spinning of raw cotton and have been employed for periods amounting in the aggregate to not less than 20 years. No such disease has been described as occurring in workers in woollen mills.

Prevention of Industrial Dermatitis

Dr. N. HOWARD MUMMERY informs us that since the publication on May 13 (p. 660) of his memorandum on "Prevention of Industrial Dermatitis" he has received a large number of letters from doctors in industry asking where they can obtain the cleansing mixture to which he referred. Arrangements, he says, have now been made by which the mixture can be supplied on direct application to Messrs. Reynolds and Branson, Ltd., 13, Briggate, Leeds, 1.